COAL AGE

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Traveling Toward Daylight

By FLOYD W. PARSONS

THE coal industry is rapidly progressing toward a solution of many of its difficulties. It is unwise, however, to assume that a few weeks of record coal shipments indicate that we are finally out of the woods. After all is said and done, the fact remains that we are a volatile people, too prone to have thumbs up today when only yesterday we were demanding a sacrifice.

About the only constant thing in the world is inconstancy. Our appetite calls for steak, and when we find we can't have it, we conclude the restaurant man is a robber and is trying to make us eat fish because his profit on this food is greater. When the shoe that pinches is on our own foot, we yell like "blue blazes"; but when some other poor devil comes hobbling along, we contend he is either a darned fool for wearing such a shoe, or a blamed traitor for whimpering.

When the house or the office is cold in January, we are sure Dr. Garfield is an incompetent, and wonder how under heaven the President could have selected him to administer the coal business; but when the warm winds of July fan us into forgetfulness, we are astonished that anyone should consider coal a prime necessity of life.

Let us try and remember that the guns on the battlefront in France are belching forth their missiles of death right now, and consuming thousands of tons of American coal. Let us rejoice that our splendid shipbuilding forces were able to launch so many ships on the Fourth of July; but we must not forget that when those ships slid into the water they represented the potential power and the actual consumption of 1,035,000 tons of coal.

We are building some new style tanks, and we hope to send them across "No Man's Land" in such numbers that the Hun defences will crumble before the onslaught; but let us remember that each big tank we build will consume 190 tons of coal. Every Liberty motor that goes into an airplane has used up in excess of a ton of coal, and we propose to manufacture these engines in thousand lots.

Never before have the shipments of coal been so large as in recent weeks, and the comment on every side is—"At last we have struck our gait." We should smile and be happy over the fact that we are breaking records, but let us not foolishly assume that our troubles are at an end. The railroads have hardly started to move crops, and they are not combating the floods, snow and ice of winter. If we cannot make headway now, we will present a sorry spectacle six months hence.

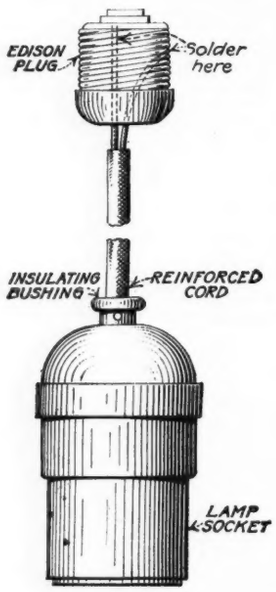
The coal situation is serious. We have fewer miners than a year ago, not many more cars and very little coal in storage. However, there is no reason to feel despondent or to slow up in our fight. No way is impassable to courage. The Fuel Administration is composed of capable, patriotic men, who are giving unselfishly the best that is in them. Great progress has been made toward the orderly and effective control of an immense industry of vital importance. Let us stand shoulder to shoulder, not a few of us, but everyone, and let us have faith one in another and see if thus united we cannot give the Huns such a licking that succeeding generations of Germans will curse the infamy of the Hohenzollerns.

IDEAS AND SUGGESTIONS

Makeshift Extension Cord

BY L. M. BECK

When an extension cord must be assembled and no extension plug is available, the cord can easily be arranged as suggested in the accompanying illustration. The length of reinforced lamp cord is first made up into a lamp socket which is provided with an insulating



SHOWING ARRANGEMENT OF EXTENSION CORD

bushing, following the usual practice. Then, instead of using an attachment plug, an old Edison fuse plug can be made to serve, as suggested in the drawing.

The mica window should be taken out of the old fuse plug; then one of the conductors of the cord is soldered to the screw shell and the other to the button contact at the end. Where refillable fuse plugs are used, screw binding posts are provided in them whereby the lamp cord conductors can be electrically connected to the screw shell and to the contact button without the use of solder.

Firing Wet Holes

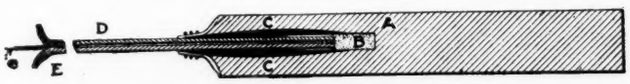
BY T. F. PRICE

San Antonio, Texas

The accompanying illustration shows a method that I have used quite successfully in firing wet holes. I trust this method may be of service to others. Referring to the illustration, *A* is a stick of dynamite, *B* is the detonator and *C* is a paraffine seal. In preparing this cartridge the covering on the end of the stick of dynamite is first opened carefully. Next, with a stick of suitable size, a hole is made in the explosive to a depth equal to at least twice the length of the detonator.

The fuse should now be trimmed in order to be sure that the end entering the cap is perfectly dry. This end is next inserted and the detonator carefully crimped. The paraffine is now applied, being carefully pressed firmly around the cap and fuse. For this purpose, the paraffine may be brought to the proper consistency by kneading and working in the hand.

The detonator may now be inserted in the cartridge, the wrapping being securely tied around the fuse. The



METHOD OF FIRING WET HOLES

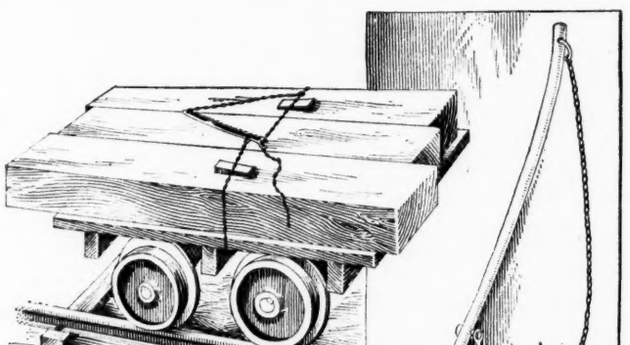
other end of the fuse, as shown at *E*, should now be split, exposing the core *e*. When the charge of explosive is properly put in place and tamped, all that now remains to be done is to light this core *e* and retire to a safe distance.

I have repeatedly used this method when firing charges submerged under 15 ft. of water and had uniformly good success.

Device for Binding Timbers on a Truck

BY C. T. RICE

In the accompanying sketch are shown the details of a useful device for binding round or square timber and lagging securely on a timber truck. It consists of a lever made of a slightly bent piece of 1-in. steel, through which two holes are punched, one about a fifth



DETAILS OF TIMBER BINDER

of the length of the rod from one end, which end is fashioned into a claw. The other hole is punched at the other end of the rod.

A clevis is attached to the hole near the claw, as shown. To this is connected a ⅝-in. binding chain, long enough to go around the load of timber and back

up under the truck. The other hole is used as a point of attachment for a small chain the same length as the binding lever. On the end of this short chain is a hook which can be made to engage some link in the binding chain.

In using the device, the binding chain is passed around the load and the timber truck and then brought back on top, so that it can be gripped by the claw in the end of the lever. The free end of the lever is then pulled back as tightly as possible, and the fastening chain hooked to a link in the binding chain, holding everything tight. When the truck is being used to haul plank lagging which is covered with ice, as is often the case in winter, it is well to drive a wedge between the chain and the top planks of the outer rows in the load, for in that way the chain can be more snugly gripped to the slippery planks.—*Engineering and Mining Journal.*

Apply Your Thought

BY LEIGH MITCHELL HODGES

To a man marooned on a desert island, a safety pin might mean more than a million dollars.

Money is useless if it can't be exchanged for something you need or want.

Thought is more powerful than money, because it not only mothers the making thereof, but determines the spending.

Yet unapplied thoughts are as worthless as dollars that cannot be used.

On the walls of one of the world's biggest factories are scores of placards bearing in giant letters the word "THINK." The founder and owner of this business says it is the one form of service he has had the hardest time getting, though willing to pay more for it than for any other.

Even those who think often waste thoughts through not applying them. Others never try cross-application—testing in some new field thoughts which already have proved profitable.

In a great industrial plant a certain man directs the manufacture of a standard product. Lately, new uses were sought for this. At one suggestion this man suddenly remembered he long ago had tried that same plan and found it practical.

Failure to apply his thought in the larger field had cost him self-advancement and sales profits.

"If twenty pairs of men's trousers can be cut out at one operation, why not apply the same cost-reducing plan to automobile parts?" was the thought-urge back of the biggest motor car business on earth.

It was simply cross-fertilization of brain power!

"If steam lifts a kettle lid, why won't it push a piston head?" was the mothering thought-force of every engine and dynamo today doing the world's work.

THINK—but don't stop there!

Don't rest with one successful application of your thought.

There may be two or ten Cinderellas whose feet will fit your glass slipper!

THINK—for thought is the ancestor of every action. But one thought may have many children of achievement.

Apply your thought in varying fields, and thus multiply your own profits and those of others.

And never let any thought pass untried—for this is one sure road to the sea of remorse, where dreams and hopes are drowned in the black waters of "It might have been!"—*Du Pont Magazine.*

Spending and Helping the Enemy

UNCLE SAM needs twenty billions of dollars or so this year for the war. What does Uncle Sam do with this money? He spends it just as you and I spend our money.

What does he spend the money for? For ships, guns, shells, clothes and food for the soldiers and sailors, and for many other things needed to carry on war.

What do you and I spend our money for? For houses to live in, food to eat, clothes to wear, and for many other things of greater or less use to us.

But some of the things we want are exactly the same things Uncle Sam wants, and some of the other things we want, while not exactly the same as the other things Uncle Sam wants, require, in order to be made, the raw material, labor and transportation facilities that are also required for making the further things that Uncle Sam must have.

Uncle Sam could not perhaps use your new suit. But he could have used the wool that is in it, the labor that fashioned it and brought it to market, and the transportation agencies that were necessary to carry it.

Hence, every time you buy something that you do not positively need you are selfishly withdrawing from service to Uncle Sam raw material and supplies, labor and transportation.

There is available only a certain amount of raw material of all kinds; labor can be pushed only to a certain limit, and beyond maximum capacity nothing further can be expected from the railroads.

Before the war, we used everything to cater to our own private needs. Now, about one-half of all that we can produce must be put aside for war purposes. If that is to be done—and it must be done if we are going to win—everybody must do his "bit."

We cannot eat our cake and have it too! We cannot insist upon eating and dressing and having a good time as before, and expect our Government to put up a winning fight. When we save, we stop competing with Uncle Sam—and with the boys in the trenches.

Better still, when we save and put our savings in Thrift and War Savings Stamps, we are saying to our boys in the trenches: "Here, boys, count on me. Here is food and clothing and medicine. If this is not enough, I'll do even better."

The best way to do "even better" is by joining a War Savings Society. Then in "our crowd," in "our shop," in "our office," we will learn to do without by all agreeing to do without the same things.

Motor-Driven Shaft-Hoist Installation

By R. P. HINES
Fairmont, W. Va.

THE purpose of this article is to give a somewhat detailed description of a comparatively large electrically operated shaft-hoist installation in the bituminous coal fields of West Virginia. Two sets of equipment are being installed, one at each of two separate mines, the shafts of which are about two miles apart. Although there is a slight difference in the depth of the two shafts, the two equipments are practically duplicates, so it will only be necessary to consider one of them in detail.

The depth of the shaft, from top of casing to bottom of coal, at which the equipment described operates, is 506.8 ft., while the travel from the sump rail to dump is 550.1 feet.

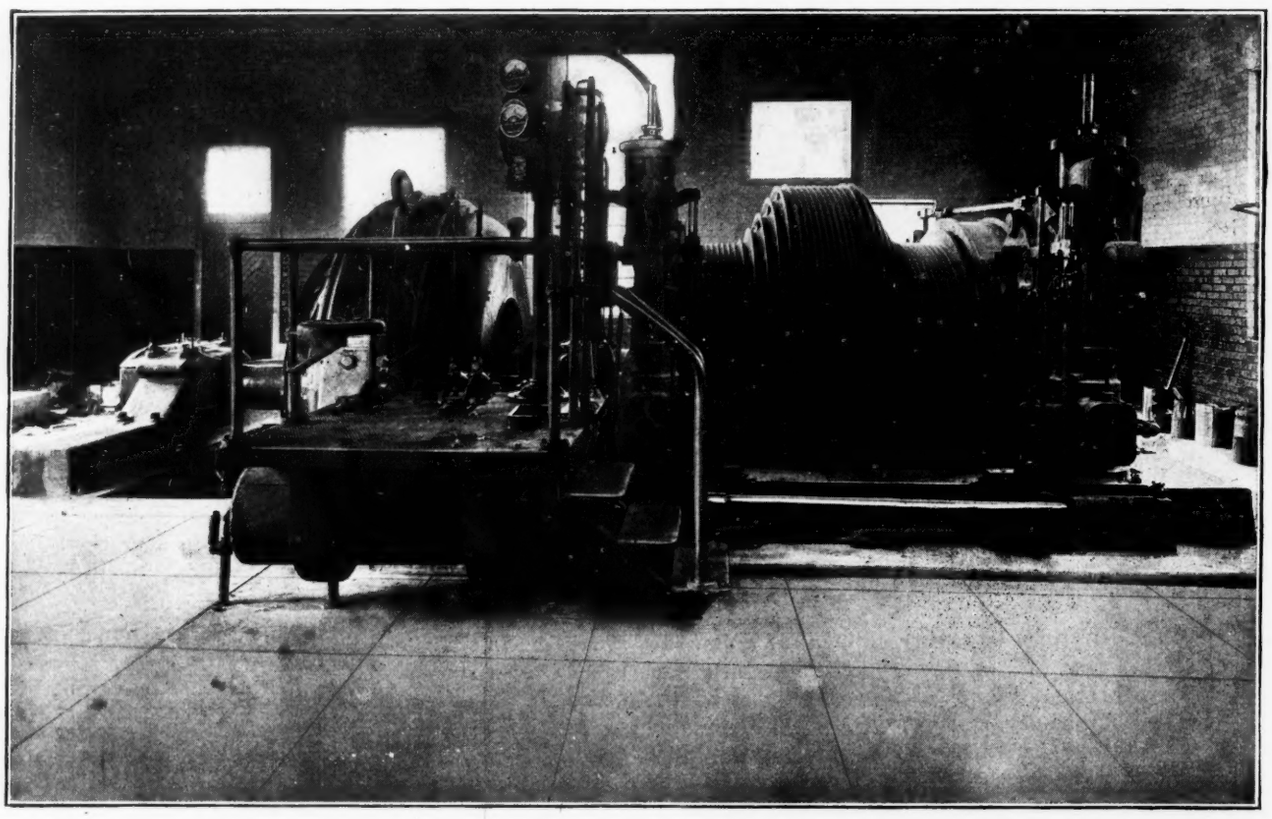


FIG. 1. GENERAL VIEW OF THE DIRECT-CONNECTED, ELECTRICALLY DRIVEN HOIST

The motor is direct-connected to the hoist, and the control and arrangement of the equipment is such that a practically constant input is taken from the transmission line, although the actual peaks on the hoist motor vary from a maximum of 1800 hp. to a minimum of 400 hp. negative. The hoist is fitted with one cast-iron, double cylindro-conical, tight-grooved drum, 8 ft. in diameter at the small ends, 11 ft. in diameter in the center and of sufficient face to coil 563 ft. of 1½-in. wire rope, allowing three full extra turns at each end of the drum for fastening. There are five active turns on each of the 8-ft. diameter cylindrical portions, five active turns on each of the conical portions, and 8.04 active turns on the 11-ft. diameter cylindrical portion. The shaft is of the double-compartment type, the loaded car and cage being hoisted in one compartment, while the empty car and cage are being lowered in the other. Two separate ropes are used on the single drum, being fastened at opposite ends, the one winding onto the drum at the top while the other is winding off the drum at the bottom, and vice versa.

The system is operated with the cages and the cars in balance, and on the slack-rope plan so arranged that the descending cage lands at the bottom as the ascending cage is coming into the dumping horns. The last 2.88 ft. of the hoist and dump is thus made "out of balance." The equipment is designed to hoist 3¼ short tons of coal per trip and to make 2½ trips per minute, operating on the following calculated cycle:

	Seconds
To strain down rope	2
Accelerating	6
Full speed running	5.82
Retarding	5
Dumping	5
Rest	0.18
Total time of trip	24.00

Fig. 4 gives the calculated duty curve based on this cycle of operation. The average hoisting speed is approximately 2500 ft. per minute, and the maximum hoisting speed is 3100 ft. per minute.

The hoist is driven by a 1400-hp., 550-volt, 90-r.p.m., direct-current, compound-wound, commutating-pole motor, the armature of which is pressed onto the same

shaft that carries the hoist drum. Two post brakes, either of suitable capacity for holding the load, are provided. These are of the air-actuated, dead-weight type. They are equipped with electrical solenoids for emergency application, and after being set may be released by levers on the operator's platform.

The electrical end of the equipment is operated on the Ward Leonard method of control combined with the Ilgner flywheel method of load equalization. By this system a flywheel motor-generator set is used for converting the incoming alternating-current power to direct current for operating the hoist motor. This unit consists of an eight-pole, 1000-kw., 720-r.p.m., 550-volt, separately excited, shunt-wound, commutating-pole, direct-current generator driven by a ten-pole, 600-hp., 720-r.p.m. (synchronous speed), 2200-volt, three-phase, 60-cycle, slip-ring, wound-rotor induction motor. A large steel-plate flywheel 8.75 ft. in diameter and weighing 30,000 lb. is connected to the motor shaft by a flexible coupling, while a 17-kw., 250-volt, compound-wound exciter is mounted on the same shaft. Fig. 3 shows this flywheel set and indicates clearly the relative positions of the different units.

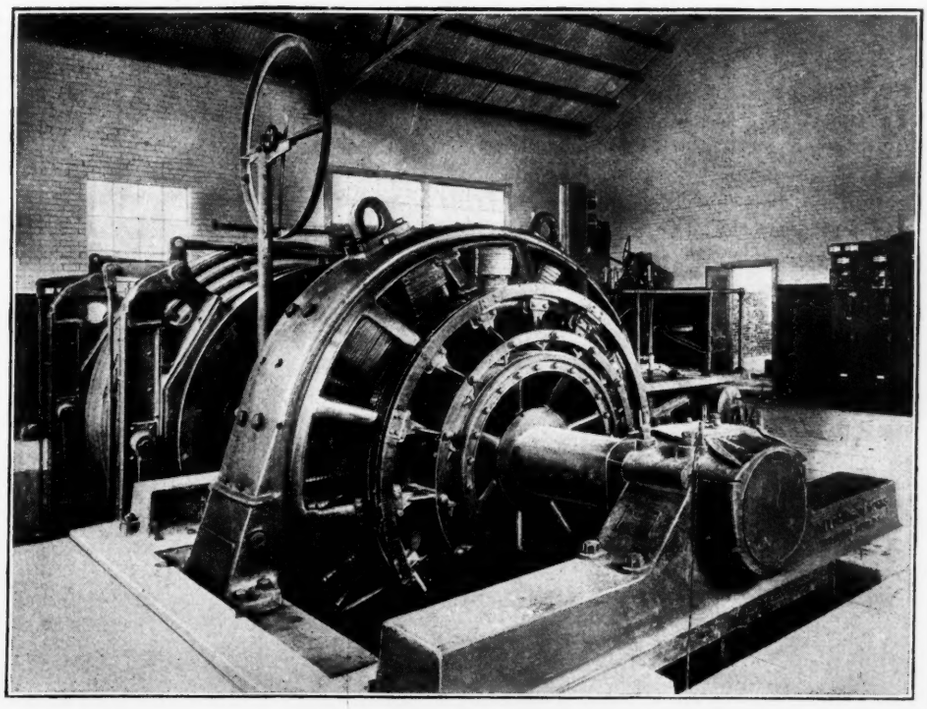


FIG. 2. MOTOR END OF HOIST

As the speed of the flywheel motor-generator set in the normal operation of the system must vary through a comparatively wide range, the direct-current exciter is designed for operation between 470 and 720 r.p.m.; and in order to maintain a constant voltage from this exciter within this speed range, a Tirrill voltage regulator is provided. This is mounted on the exciter panel, and in this way forms part of the switchboard equipment. The switchboard equipment provided for the installation comprises seven panels, as indicated by Fig. 6. These include an alternating-current incoming line panel; an alternating-current motor panel for the flywheel set; a direct-current motor panel and a direct-current exciter panel. The other panels are included for controlling a small bank of transformers for reducing the 2200 to 220 volts for the tipple motors; together with the required 220-volt feeder circuits, which also furnish power to the motor-driven air compressors used for obtaining the compressed air required for operating the air brakes of the hoist.

Power to operate the flywheel set is transmitted at 23,000 volts from the central generating station over a line approximately three miles long. The conductors of the line are carried on triangular laced steel poles, with some rectangular four-leg towers, on the long spans. A Siemens-Martin galvanized-steel strand ground wire is used.

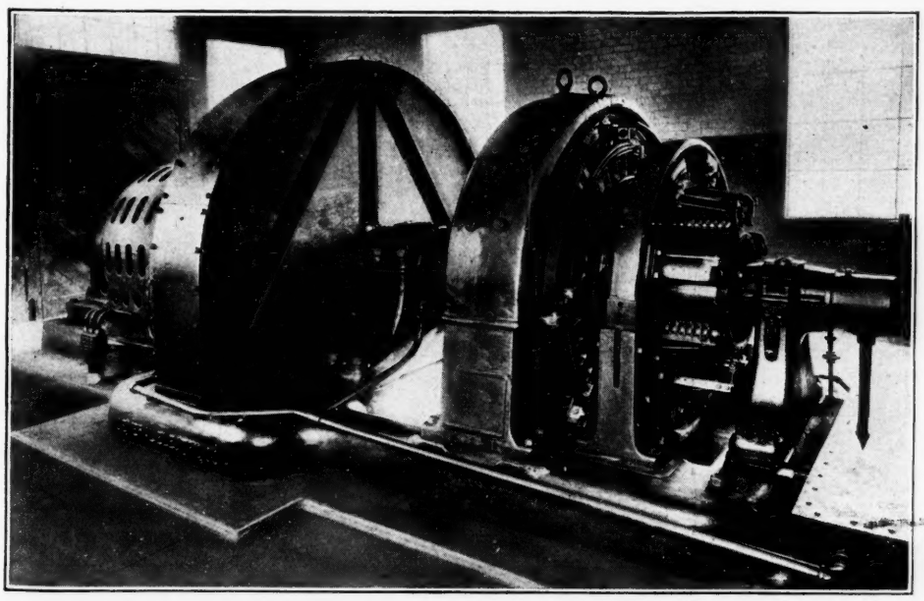


FIG 3. MOTOR GENERATOR SET FROM DIRECT CURRENT END

Outside the hoist house there are installed three 250-kv.-a., single-phase, 60-cycle, oil-insulated, self-cooled, outdoor-type transformers, which reduce the line potential from 23,000 to 2300 volts, at which voltage the power is delivered to the alternating-current motor of the flywheel set.

The speed and direction of rotation of the motor driving the hoist are controlled by varying the strength and

polarity of the generator field by means of a controller mechanically operated from a lever under the control of the hoist operator. This lever is moved forward or backward from a central or neutral position, depending upon the direction in which the operator desires the hoist to run. This actuates the controller, which is arranged to reverse the field connections and thereby the polarity of the direct-current generator. This reversal of the generator polarity also reverses the direction of rotation of the hoist motor.

A variable resistance in the field of the direct-current generator is also actuated from the controller, so that continued movement of the operating lever in either direction from the central or neutral position reduces this resistance by steps. This increases the field strength of the direct-current generator and its voltage and consequently the speed of the hoist motor.

The speed of the induction motor connected to and driving the direct-current generator and the flywheel is automatically varied in such a manner that the flywheel is caused to give up or to absorb energy as the occasion demands, and it is of such capacity that practically constant input will be taken from the transmission line when the hoist motor is operating in accordance with the required duty cycle.

The automatic variation in the speed of the induction motor is accomplished through varying its slip, by means of a water rheostat inserted in the rotor circuit of the induction motor, the resistance being altered by raising or lowering the electrodes. This is accomplished by a small induction motor (called the torque motor), which is arranged with its stator winding in series with the main incoming alternating-current supply circuit to the induction motor of the flywheel set. To the shaft of the torque motor there is rigidly attached a long arm from one end of which the movable electrodes of the water rheostat are suspended, while

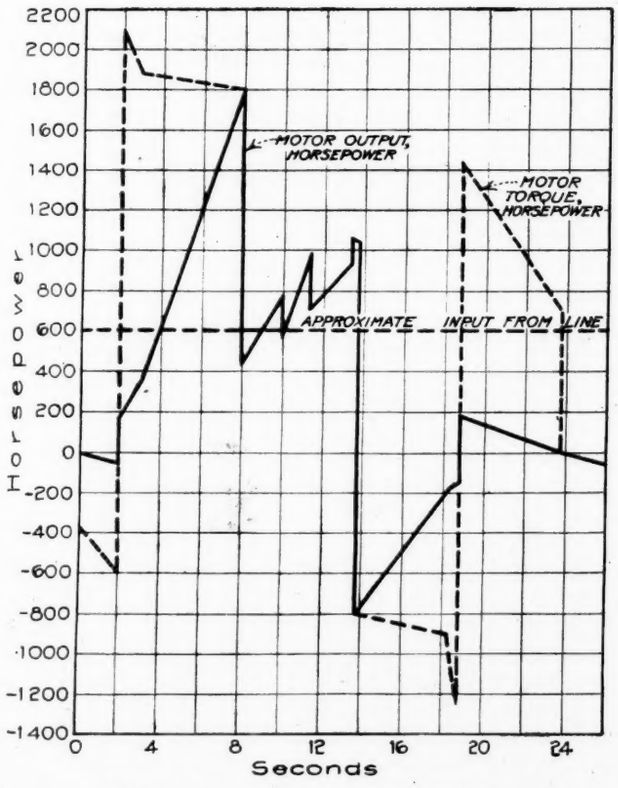


FIG. 4. DUTY CYCLE OF THE HOIST

at the other end weights are attached, thus permitting the adjustment of the balance of the moving parts.

The torque of the motor at the predetermined line current value and the weight of the moving parts are balanced against each other. When the current input to the alternating-current motor tends to increase above the constant value for which the equipment is adjusted,

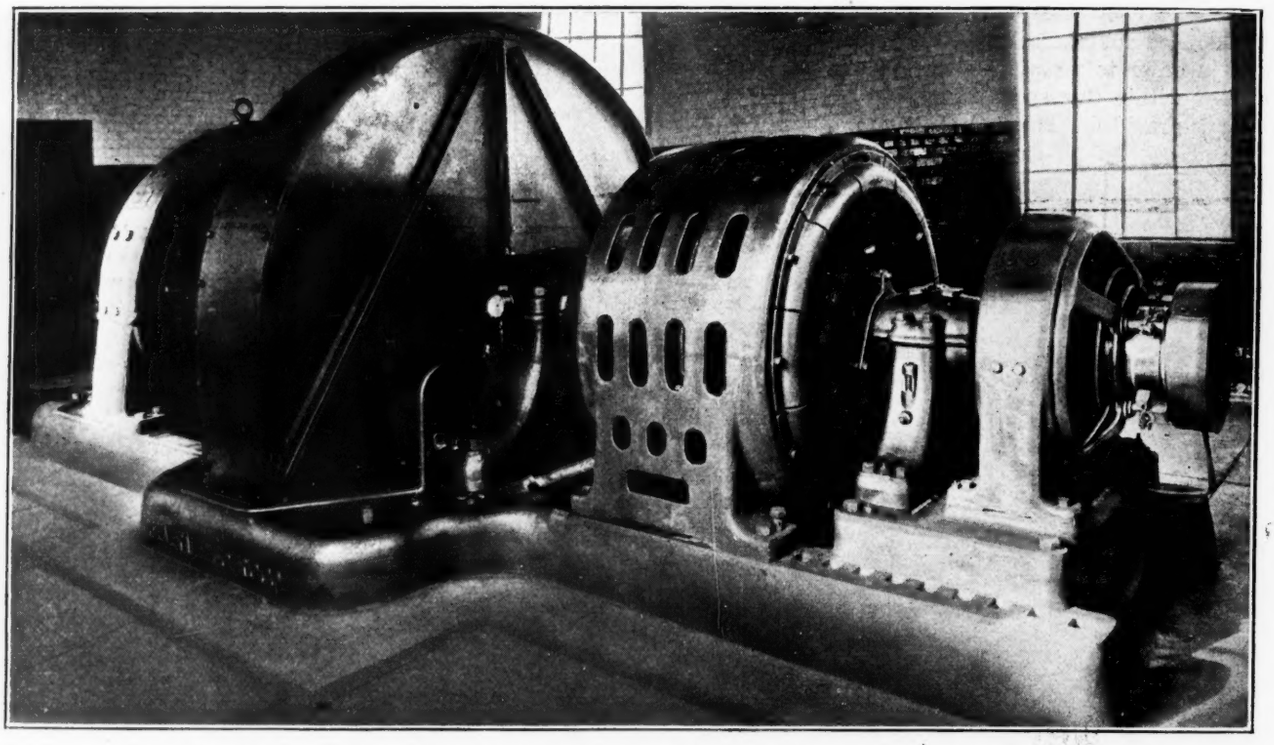


FIG. 5. THE MOTOR GENERATOR SET FROM THE ALTERNATING-CURRENT END

the added torque of the slip motor, caused by this increased current passing through its stator windings, overcomes the weight of the movable parts, raises the electrodes and thereby increases the resistance of the water rheostat in the rotor circuit of the alternating-current flywheel motor, and consequently its slip—or tends to slow it down. Thus the energy stored in the massive flywheel is given out to supply the extra demand of the hoist motor. Inversely, when the alternating-current input to the motor of the flywheel set tends to fall below the constant value, the torque of the slip regulator motor decreases, the weight of the moving parts lowers the electrodes of the water rheostat. This decreases the resistance in the circuit of the rotor of the induction motor, the set is speeded up, and the excess energy taken from the line (over that required at this time by the hoist motor) is stored up in the flywheel.

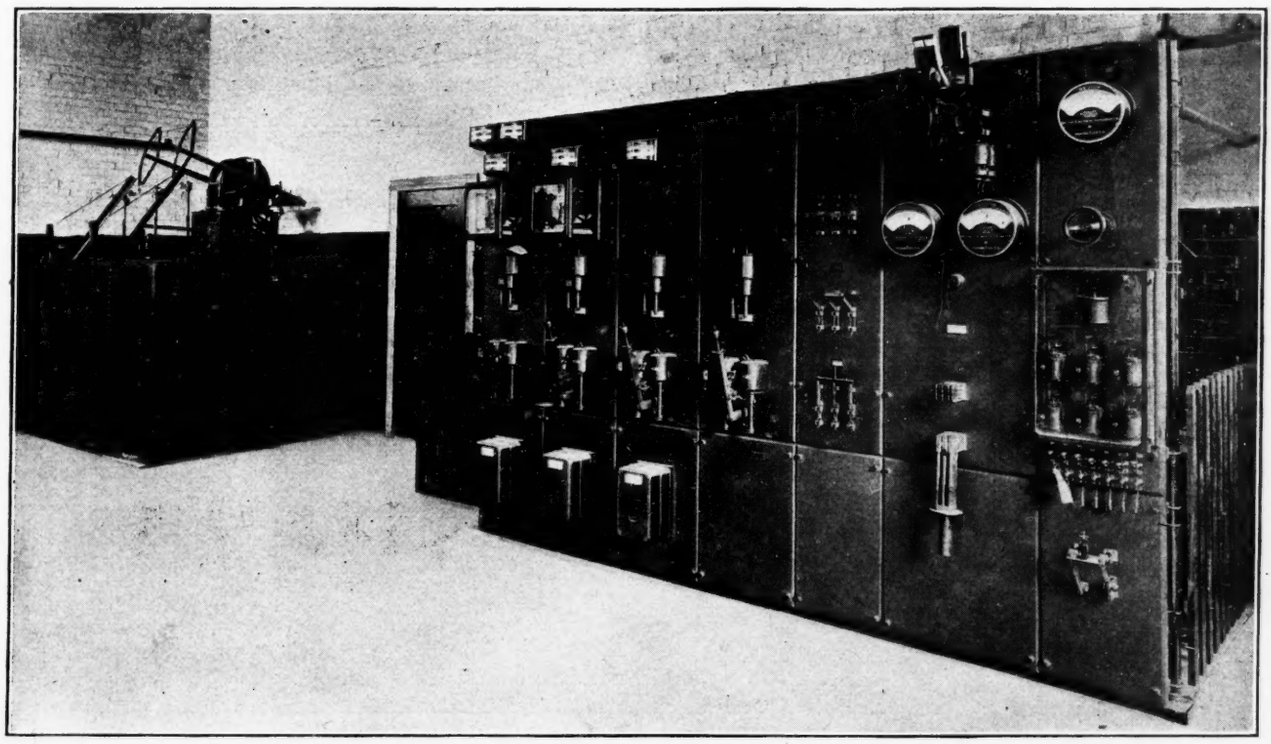


FIG. 6. THE SWITCHBOARD, SHOWING CONTROL DEVICES THEREON

This equipment is so designed that in case of a failure of the alternating-current power supply to the motor of the flywheel set, after a trip had been started, there is sufficient energy stored up in the flywheel to completely finish the hoisting cycle and land the loaded trip at the top. Under normal operating conditions the flywheel merely gives up the necessary amount of energy required by the hoist motor during that part of the cycle in which the demand exceeds the constant amount to be drawn from the alternating-current line, having stored this up during that part of the cycle when the hoist motor demand was less than the constant amount of power to be drawn from this line. The flywheel has a normal rim speed of 3.74 miles per minute, and in dropping its speed 10 per cent. below normal will give out approximately 7000 horsepower-seconds.

For a shaft of the depth given, there is a great advantage in using a drum of the cylindro-conical form, because in this type, when properly designed, the load is accelerated and brought up to full speed on the small cylindrical part. The starting peaks are thus greatly reduced and a considerable saving in power consumed also is effected. Furthermore, there is a decided increase in the overall efficiency.

These gains, attributable to the cylindro-conical drum, are usually more marked in cases of comparatively short lifts and high rope speeds. Of course, in some cases where the starting peaks are the dominant feature in determining the size of the hoist motor required, through a reduction in these starting peaks, the size of the hoist motor is correspondingly reduced.

The use of the Ward Leonard system of control with Ilgner flywheel load equalization results, in the case under discussion, in a great saving in actual power consumed from the alternating-current line; also the peaks of the hoisting cycle are smoothed out, thus relieving the central generating station of the sudden and widely fluctuating demands that the hoist motor would otherwise make on it. All losses in gear reductions and most of those occurring in rheostats are obviated; but against these is balanced the normal flywheel rotation and other losses in the motor-generator set. However, it is estimated that by adopting the foregoing system of control and load equalization as against the regular alternating-current motor driving the hoist through a gear reduction, the actual saving in power for each trip is from 80 to 100 per cent. and the peak demand from the line of approximately 2600 hp., which would be expected with the alternating-current, geared hoist motor, has been converted into a practically constant demand of about 600 hp., or less than 24 per cent. of the peak that would occur with the alternating-current geared motor.

Of course, the comparative merits of the Ilgner-Ward

Leonard system and the alternating-current geared motor should be determined for each case, because the former system will not show such marked advantages in every instance. There are cases where the power consumed might be more than that of an alternating-current geared motor, but there is in its favor in every case the practically constant demand from the line. In purchasing power where the price is based on a maximum-demand or peak-load charge in addition to the usual charge for the actual energy consumed, also even when generating one's own power, if the capacity of the generating station is not large compared to the load carried this point of constant and even demand is of great importance.

Generally speaking, the most marked advantages may be expected from the Ilgner-Ward Leonard system where the lift is moderate, the load comparatively heavy and the rope speed high. As the control equipment has to handle only the comparatively small field current of the direct-current generator, the parts are small. When in motion the hoist motor has its fields excited with but little resistance in circuit, but in order to reduce the losses when the motor is standing still the control is designed so that at this period an additional resistance (called an "economy resistance") is inserted in circuit, where the controller is brought to the neutral position. This reduces the standby field losses in the motor and also the field heating.

Comprehensive protection is secured through the use of devices which accomplish the following:

1. Automatic devices are provided which prevent retardation being accomplished in less than a predetermined rope travel. This limits the load which can be placed on the hoist motor and also the generator of the flywheel motor-generator set during this period. However, the operator is free to retard at a slower rate than fixed by the automatic devices and to run at intermediate speeds.

2. The hoist is automatically retarded at the proper rate, independent of the operator, when either cage approaches the dump.

3. In case the operator allows either cage to go past the landing by a predetermined amount, the power will be automatically cut off entirely from the hoist motor, and a relay will be operated which automatically applies the emergency brakes. This automatic device will, however, allow the operator to start the hoist in either direction from any point in the cage travel.

4. Additional overwind protection is provided by separate switches, actuated by the cages themselves, which may be placed so they will cut off power from the hoist motors and automatically apply the emergency brakes at any desired point of travel beyond the landing.

5. In case the exciter voltage or the motor field current fails, the direct-current circuit breaker will be automatically opened, thus cutting off power from the hoist motor and automatically applying the emergency brakes.

6. A hand-operated emergency switch is provided within easy reach of the hoist operator, by means of which he can automatically cut off power from the hoist motor and apply the emergency brakes.

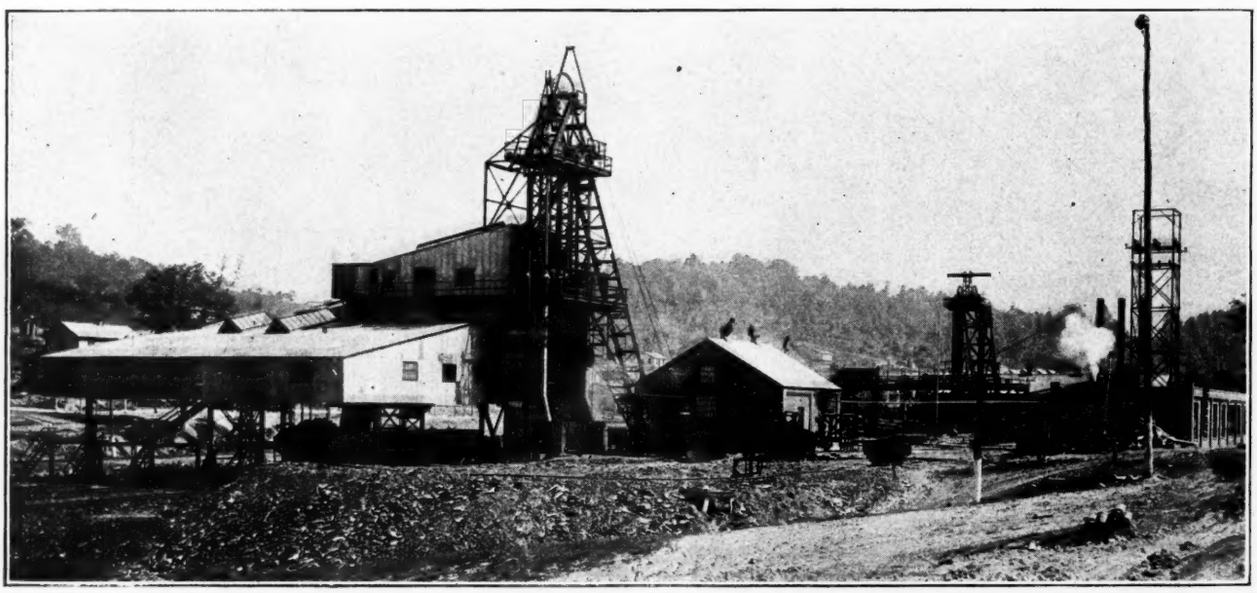


FIG. 7. GENERAL VIEW OF THE SURFACE EQUIPMENT

7. When hoisting men limit switches are provided, which prevent the operator from allowing the cage to go past the main landing.

8. Additional generator field resistance is provided and so arranged that when hoisting men the hoisting speed is further limited.

9. The special safety devices employed when hoisting men have their control circuits so interconnected with a signal system that a visible signal is given to the men to be hoisted, showing that such safety devices have been put into operation.

Serve abroad or serve at home. Buy War Savings Stamps.

Hartley Withers, the editor of the Economist, of London, says: "Money spent in war time on things not needed is money given to the enemy."

Labor and material are essential to victory; use both sparingly.

Save for the country's sake.

Coal Mining in British Columbia

BY R. DUNN
Victoria, B. C.

SYNOPSIS—*British Columbia, as well as other portions of the Canadian Northwest, is anticipating a coal famine next winter. The demand for and output of coal is now stronger than ever before. Men are scarce, the cost of supplies high and still rising, equipment is difficult to secure, and new development is thus strongly retarded.*

THE vital importance of coal to the industrial and domestic life of the country is being brought home more forcefully every day to the people of Canada. In British Columbia, a coal-mining center, this is specially noticeable because in the past, with producing mines a few miles away, coal had come to be taken somewhat as a matter of course; something which, everybody agreed, cost far too much but which could, at any time, be secured in any quantity provided the price was forthcoming.

Circumstances are changing. The collieries are working at a high pitch. They are turning out as much coal as the men and equipment available can produce. New mines are being opened, and yet the prospects are that the demands on British Columbia coal this year will far exceed the supply. It may well be asked: "Why is this so? In what way have conditions so materially changed in the last few months as to warrant the assertion that this province, at present producing coal at a greater rate than for many years, despite the handicaps of labor shortage and high prices of mine equipment, is unlikely to be able to fill all orders?"

In answering these questions the position, not only in British Columbia, but throughout the Pacific Coast states and the Western Canadian provinces, has to be considered. First let us glance at the records with respect to the sale of coal by British Columbia in the years 1916 and 1917. These are as follows:

SALES IN 1916

Coal:	Tons
Home consumption	858,052
Export to United States	837,879
Export to other countries	6,166
Total	1,702,097
Coke:	**Tons**
Home consumption	233,456
Export to United States	34,377
Total	267,833

SALES IN 1917

Coal:	Tons
Home consumption	935,469
Export to United States	754,568
Export to other countries	38,211
Total	1,728,248
Coke:	**Tons**
Home consumption	147,811
Export to United States	12,711
Total	165,022

It is important, in order to properly grasp the story told by the foregoing figures that it should be understood that "home consumption" means, in the strictest sense, just what the words convey provincially; that is to say, none of the coal so classified goes outside the province. Therefore, it will be seen that almost half of British Columbia's production has gone and continues to go to the adjacent states—the greater part to California. To the coal miners and operators this is an important market, developed to its present state in the course of 50 years of trade.

It is not saying too much for the coal of Vancouver Island, from which section the coal for export chiefly comes, that the consumers of the State of California would not relish the idea of being forced to make a change. It follows that everything possible will be done, as far as the operators are concerned, to maintain their obligations both in respect of home consumption, which is a first consideration and has been always so considered, and in regard to the needs of the people of the southern Pacific state.

But on top of these considerations come two new developments. One is the demand that the coal fields of British Columbia and Alberta[1] supply, if not fully, to a much larger extent than heretofore, the requirements of the Canadian prairie sections as far east as the Great Lakes. This includes the large market of the Province of Manitoba which, in the past, has depended on the anthracite of the States. Another is the possibility of the local British Columbia market being indefinitely expanded through the cutting off by the United States Government, as a war measure, of the fuel-oil supply to the Northwest from California.

In regard to the former its seriousness to the prairie provinces and the necessity for concerted action of some sort were the subject of addresses by C. A. McGrath, fuel controller for the Dominion of Canada, and C. W. Peterson, deputy fuel controller, at a public meeting held in Winnipeg on the evening of Tuesday, May 14. On or about that date Mr. Peterson gave a statement to the daily press as follows:

In regard to the coal situation as it affects the prairie provinces, I may say that the only positive statement we have from the United States authorities at the present time is that anthracite shipments to Western Canada will be materially restricted. As a matter of fact we have no positive assurance that any anthracite at all will be shipped to the head of the lakes. It should not be forgotten that the coal situation changes almost from day to day in sympathy with the variations of output and the demands from every source. As an illustration I may mention that events have transpired recently that will probably render it necessary for the continent of America to find additional coal supplies for one of the Allies. This may easily prove an important factor in the coal situation during the coming winter.

A few days later Mr. Peterson held a conference

[1]What is said herein applies, generally speaking, with equal force to Alberta and Saskatchewan, although references to local conditions mean conditions in the Province of British Columbia. That the operators of Alberta are doing their utmost to meet the situation is shown by the remarkable jump in their output for the year 1916, although the figures available indicate that difficulties, which may be classified as national and provincial, brought down the production of the year 1917. The totals, as far as available here, are: Alberta, 1915—3,434,891 tons; 1916—4,648,604 tons; and for the first three quarters of the year 1917—2,213,501 tons. In Saskatchewan the output for 1915 was 237,249 tons and for 1916, 267,234 tons.

with the coal operators at Calgary, Alberta, the object being to discuss and decide upon measures for the speeding up of production.

It is not necessary to devote more than a few words to the other development referred to, namely, the necessity of replacing fuel oil with coal should the California oil be withdrawn from the Northwest, because this, although predicted, has not yet transpired. If it does, however, the result will be a further draft on the coal supply of the province of considerable proportions, as the liquid fuel is used largely by the Esquimalt & Nanaimo Ry., the only important railway of Vancouver Island, and by all passenger train locomotives operating on the mainland of British Columbia. It is true, in connection with the latter, that coal gradually is replacing oil, but the sudden cessation of importations will unquestionably materially strengthen the home coal market not only in respect to the transportation companies, rail and water, but with regard to industrial plants, business blocks, etc.

As a further illustration of what this means to the province it may be said that conservative estimates place the quantity of oil used in British Columbia at approximately 8,000,000 barrels per year, or the equivalent of about 2,500,000 tons of coal.

And now the other phase of the situation may be given brief scrutiny. What is the condition in the province and how are the operators of the collieries that are expected to meet this increased demand placed? Generally speaking, the condition cannot be said to be a happy one. Operators have problems of a character that have never in the past been faced. To begin with, there is the labor question. While in some districts there is no appreciable lack of men to handle the present output of the mines of these particular localities, in other sections, where the mines possibly are not as modernly equipped and the conditions under which the workers are toiling are perhaps more onerous, there is a distinct and unfortunate shortage.

Wages Have Gone Up Considerably

It goes almost without saying that wages have increased to a large extent, but the mine managers have met the demands in this respect in almost every instance, and it is gratifying to be able to report that the relations between employee and employer are amicable and satisfactory. The operators have recognized that the general increase in the cost of living entitles the men to more wages, while the fuel controller, of whom more anon, when appealed to by the employers has consented to an increase in the selling price of coal. Thus the burden, as is always the case, has been shifted to the broad but, in recent years, somewhat staggered shoulders of the body politic.

But the point that I want to bring out here is that, with this position as to men, the collieries are at a decided disadvantage in their efforts to further develop the coal fields by the opening of mines and thus increase their production. It is to their credit, therefore, that despite difficulty they are going ahead, crossing no bridges before they are reached, and so far under the circumstances they have been able to accomplish wonders.

It will be interesting here, perhaps, to review a little history—not ancient history, for the events in question happened only last year and have a bearing on future prospects. In the fall of 1917 there developed considerable agitation among the municipal officials of the cities of Vancouver and Victoria, it being the contention that the coal dealers were charging outrageous prices. About that time the fuel controller for the Dominion appointed a British Columbia representative in the person of Nichol Thompson, a citizen of high standing and a business man with long experience in connection with eastern Canadian collieries. Through Mr. Thompson and the Hon. William Sloan, minister of mines, an investigation was instituted into the cost of the production of coal and of the handling charges from the mine to the consumer. As a result it was made fairly clear that the profits of the middleman were not exorbitant, certainly not as exorbitant as newspaper articles, based on ex parte statements, had indicated.

Would Not Buy Coal in Summer

It served the purpose, however, of bringing out the fact that residents of these municipalities, and of New Westminster, B. C., as well as other parts of the province, were in the habit of postponing their coal purchases until the winter and that through the summer the collieries often found no market for their output. The result was that orders were crowded into six months, demand exceeded production, and coal famine threatened. Fortunately the winter of 1917-18 in the Pacific Northwest was unusually mild and the condition feared did not develop.

However, it is hardly to be expected that the same conditions will prevail in the winter of 1918-19. Profiting by the experience of the past, and realizing the imperative need of being in a position in the months to come, to supply, not only British Columbia, but the established market of California and the prospective market of the Canadian prairie provinces, the colliery managers and the dealers of this province are inaugurating a campaign with a view to having local residents lay in their winter's supplies this summer, thus assisting in the even distribution of the demand.

To this end, and with the object of establishing the machinery through which the people may be impressed with the need of conserving coal and of the various methods of doing so, the Dominion Government recently passed an order-in-council authorizing the provinces to appoint fuel administrators within their several jurisdictions and giving each municipality power to appoint a fuel commissioner. It is felt that this will have the effect of bringing into operation an immense organization throughout Canada by means of which an effective educational campaign may be waged.

One of the pleasant features of the present position in the Northwest is the good feeling between the men and the managers, to which I have referred. This has been brought about by a disposition on both sides to recognize each other's difficulties and to make concessions. An instance of this was brought to my attention the other day. The employees of a certain Island company wanted an increase in pay. They took the position that the rise in the cost of living had so diminished the value of the dollar that more money was essential. A committee was appointed to wait on

the management, by whom it was received courteously and its representations listened to sympathetically.

The case for the men had been thoroughly prepared. Statistics were submitted showing the augmented cost of various articles of food and clothing and proving, beyond a question, that what might have been considered a fair scale some months ago was not so now. The management replied, in effect: "We recognize the force of your argument, but we cannot, without losing money, pay you more. To demonstrate our good faith you are welcome to review our books. They are open to any auditor in whom you have confidence, and the examination can start now if you so desire."

The men accepted this invitation and the report substantiated the company's position. "Very well," said the men, "we recognize that your shareholders are entitled to a reasonable return on their investment. We still think we are justly entitled to a living wage. Therefore we will gladly join you in demanding of the fuel controller authority to increase the selling price of coal at the mine." This course was adopted, with the desired effect, and peace and good feeling was maintained.

Shortly after the war began the miners of Vancouver Island, and this applies in general to those of all British Columbia, were given a 5 per cent. war bonus which was followed by a 5 per cent. time bonus, its purpose being to encourage continuous work. On Jan. 1, 1917, there was a 10 per cent. straight bonus, and in December of the same year another bonus of the same magnitude and character. On Apr. 15, 1918, the latest increase was agreed upon, namely, 50c. a day straight bonus. In other words, the wages of the miner in British Columbia have risen 30 per cent., together with a straight 50c. per diem, since the outbreak of the war. When this is taken into account in conjunction with the fact that supplies have soared, broadly speaking, 80 per cent. (some of the high-grade steel material having climbed as much as 160 per cent. over the prewar prices), some conception of the problems with which the operators are dealing may be obtained.

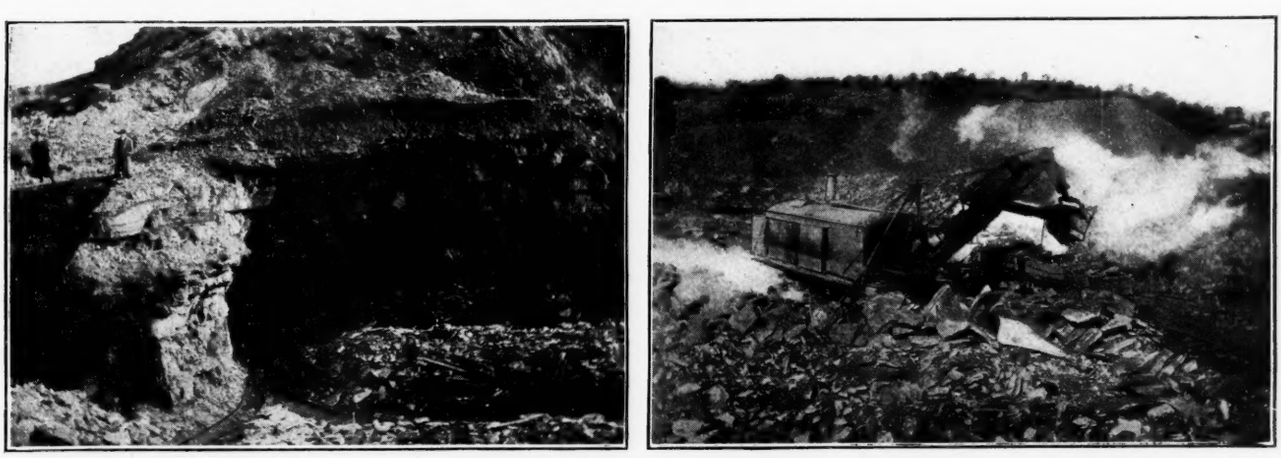
Circumstances would not be so difficult if the prices of coal had risen in the same ratio or if, even at the prices quoted, equipment was readily obtainable. As to the former, in January, 1917, there was an increase of 10c. a ton; in July of the same year another of 65c. a ton; and in February, 1918, another of 30c. a ton. With respect to the latter, the demands being made upon all the large industrial plants of the United States and Great Britain, the restrictions imposed on exportations, and the transportation difficulties have made the obtaining and delivery of equipment so uncertain and the delays so extended even when all arrangements have been perfected, as to seriously hamper the new development of coal fields.

The selling price of coal at the mine is now $5.80 per gross ton as compared with $4.25 and $4.50 in 1914. This will give some idea of the enormous advance in costs throughout the Northwest. It almost goes without saying that, in the face of these figures, a further increase in the selling price of coal by the dealers will be necessary.

Whether British Columbia will be able to accomplish everything that seems to be expected of her in meeting the demands of the home, the prairie and the southern markets remains to be seen. It must be apparent that the coal-mine managements have a stony path to tread but, if they fall short, it will not be their fault as far as can be judged at the time of writing. The miners, too, are coöperating. But lack of mechanical facilities and shortage of labor in some districts are difficult hindrances to overcome, and it will be imperative, if serious emergencies are to be avoided during the winter of 1918-19, that the public be fully apprised of the facts and instructed as to how it can best buy and save in order that, while having sufficient fuel for ordinary needs, the heavy demands may be so evenly distributed as to enable the producers to deal with the extraordinary situation which the exigencies of the war have developed.

Views of Anthracite Stripping

The accompanying illustrations show two views of the Delaware & Hudson strippings at the Plymouth No. 4 Colliery in the Borough of Larksville, near Kingston, Penn. The photograph on the left shows the Cooper and Bennett coal beds at the point where the entry is made to the underground workings. The photograph on the right shows a shovel making the second cut in the removal of overburden. The Larksville Mountains are seen in the distance.



DELAWARE & HUDSON STRIPPINGS AT THE PLYMOUTH NO. 4 COLLIERY NEAR KINGSTON, PENNSYLVANIA

The Snow-Bird Mine

By S. C. REYNOLDS
Houston, Penn.

SYNOPSIS—*The total number of wagon mines in operation in this country is somewhat over 2000. Although the operation of such mines has been criticized, frowned upon and discouraged in every way, they often reclaim coal considered as worthless by the big producers. During the past two years they have placed upon the open market several million tons of coal at a time when it was sorely needed.*

DURING the last two years a good deal has been said of, and more or less interest taken in, the small mines eligible to the "snow-bird" classification. While at first thought it would seem that the "pesky wagon mine"—as it was referred to in an editorial comment in *Coal Age* some months ago—could hardly warrant much interest, yet, when it is realized that during the past two years considerably over 2000 wagon mines have been opened up in the coal fields of this country, it will readily be seen that this is a matter of some importance to those in charge of the fuel problem of the nation. This problem is now more vexing than ever before.

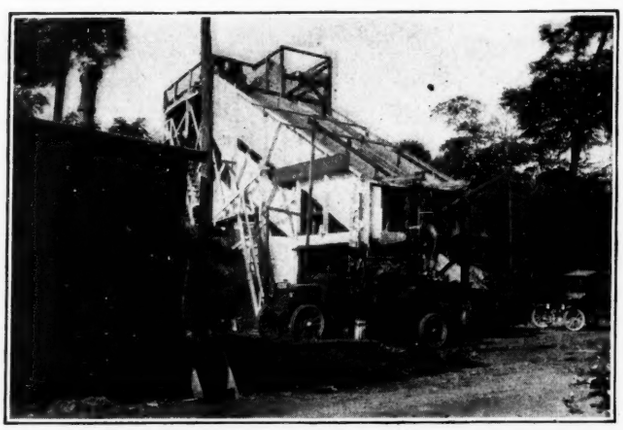
Many reasons have been advanced—principally, however, by those who were hardly in a position to speak in an impartial manner—as to why the "wagon mine should be weeded out." It has been charged that the small mine is wasteful of labor; that the miners could be used to better advantage in the larger and better equipped mines; that these operations are wasteful of the teamster's time who hauls the coal from them, and that railroad cars are kept idle which otherwise might be in use. After all, I wonder if the last reason given why the "pesky wagon mine" should be weeded out isn't really the only reason that would stand a fair analysis. While any business that in any way hampers the already overtaxed railroad equipment should be eliminated, if possible, it is also true that any harm done in this respect by the small mines has been counteracted a hundredfold by the thousands of tons of coal produced by them and thrown into the open market at a time when it was sorely needed.

Aside from being personally interested in a mine of this sort—which I confess at the start—I have had an unusual opportunity to watch the development and the work carried on by at least 200 mines of this class in Pennsylvania alone during the past two years; and while my business with them pertains only to workmen's compensation, I have naturally absorbed a good deal of first-hand information about these small mines which are scattered throughout the coal fields.

THE DUMP OF A SNOW-BIRD MINE

One of the principal assertions advanced by those who desire the elimination of the wagon mines (that they are wasteful of labor) can readily be disproved, because, as a matter of fact, while these numerous mines as a whole have produced several millions of tons of coal during the last two years, the labor used could probably not have been employed to better advantage. I have invariably found that the majority of miners digging coal in these small mines are men who for various reasons do not care to work in the bigger railroad operations.

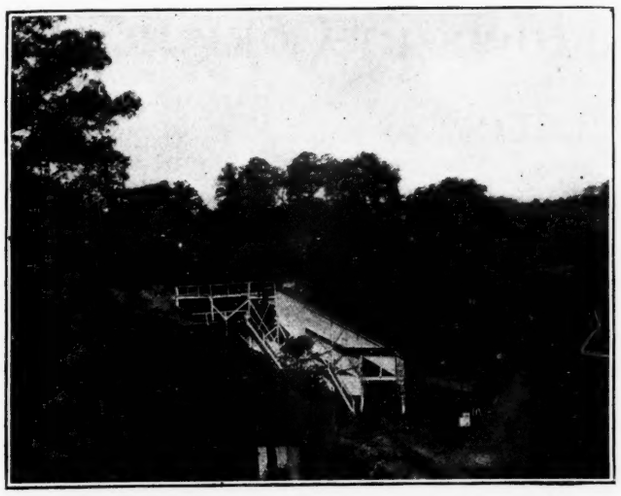
The miners who as a rule dig coal in these small developments are frequently local characters who prefer



MOTOR TRUCK RECEIVING ITS LOAD

to work only in such mines, where they can be, in most instances, within a few hundred feet of daylight, unhampered by union regulations, or the necessity of waiting on the "machine man" to cut their place; where they can go to work early or late as the humor strikes them, and "knock off" when they choose. I know of dozens of instances where their tonnage loaded over a period of a month compares favorably with that of the miner in the big mine. The fact that there is seldom a strike or a general lay-off on account of a "hunky" wedding or christening helps to equalize any difference in efficiency in favor of the miner in the larger mine by reason of machine mining.

Hundreds of these small mines that are operating today in spite of what seem unjust conditions are supplying coal to the consumer direct from the mine, also to local industries by wagon and automobile trucks, which otherwise would have to draw upon the railroad mines for their supply. Furthermore, I happen to know that a great many industrial plants that are



GENERAL VIEW OF SNOW-BIRD TIPPLE

now getting their coal supply in railroad cars from the larger mines could have secured their fuel requirements direct from small operations adjacent to the plants had provision been made by our Fuel Administration to allow the small mine operator to charge a price for his coal that would make it possible for him to operate.

A year ago scores of these small mines were hauling coal in wagons and trucks over distances up to four or five miles. I have in mind now two different snow-bird mines that were opened up near Pittsburgh with conditions much alike. The coal was the thin vein. About $15,000 was invested in automobile trucks and the necessary equipment. Coal was loaded in cars at a railroad siding two miles distant. It was loaded principally into cars that had been emptied of their freight and were not moved until loaded with coal. Everything went beautifully as long as the price of coal was above the $3 mark, but anything below that figure defined the difference between a working profit and a loss. Consequently, after Government restriction they shut up shop and the tonnage available from the two was lost from the market.

The small mine operator has been hampered and discouraged at every turn. For many weeks the railroad companies refused him cars in which to ship coal. Later it was decided to permit him to load only box-cars and allow 75c. per ton above Government price, which with present labor conditions about pays for shoveling the coal from the wagon or truck into the car, to say nothing of the cost of the haulage from mine to railroad siding. And the 75c. allowed above the mine price for loading box-cars is the price regardless of whether the distance from the mine to the loading point is 500 ft. or five miles.

Acres of crop coal that otherwise would have been left in the hillsides have been mined during the last two years by the wagon miner, and from a conservation standpoint that fact alone is surely commendable. Within sight of where I write a couple of men leased the crop line from the owner of a farm from which a big operator had taken all the coal he thought worth while and drew the stumps and abandoned the property as being worked out. Since the first of June, 1917, however, that crop line has produced over 20,000 tons of coal. And the lessees are still producing.

The wagon-mine operator has come in for a good deal of criticism from the big mine operator whenever the opportunity arose. This is natural. There is the same reason for affection on the part of the big mine operator for the wagon-mine operator as there is for evidence of a warm feeling by the street car company for the "jitney bus," or the big department store for the small corner grocer.

However, as remarked by an editor of national repute a few days ago, "If you know of any way to increase the fuel supply of the country at this time, it is your clear duty." But, making conditions such that it is impossible for the small mine operator to produce coal, or discouraging the mining of coal in any way, regardless of the size of the operation, is not, in my opinion, the best thing to do.

The New Harewood Mine

Harewood mine is one of many recently opened on Vancouver Island. It is situated about four miles southwest of Nanaimo, which is the central city of this famous coal field.

This mine is owned and operated by the Western Fuel Co., of Nanaimo, with offices in San Francisco. This company was recently reorganized. G. W. Bowers has been appointed general manager, and John Hunt, superintendent, was promoted to general superintendent. The search for new mines has gone steadily forward.

The Old Harewood mine was visited and explored and there was found enough coal in the old pillars to warrant reopening the mine. This is the third time this mine has been opened. It was first opened about 40 years ago, when the coal near the outcrop was worked for a short period.

In 1902 the mine was again reopened and was more extensively worked, a shaft being sunk on the east side of the ridge, where the seam was cut at a depth of 150 ft. and the coal worked from this point to the raise joining with the former workings through two levels. The operation was closed down again in 1904 and reopened in August of last year.

Since that time the old mine has been developed fairly rapidly and is now producing 750 to 800 tons of coal daily with about 200 underground employees. It is now the second largest producer on the island, the No. 1 shaft at Nanaimo holding premier place.

The power for the working of the mine is electric and is supplied from generators situated at the old shaft, which is now used as the upcast. A Murphy fan supplies about 30,000 cu.ft. of air per minute to the mine and runs at half capacity. The haulage is performed by two Jeffrey locomotives in the main levels, while electric winches are used in hauling coal up the dips.

The coal varies greatly in height, increasing in places to 20 ft. in thickness, while the greater portion of the bed will average between 4 and 5 ft. Numerous rolls and faults are found on the dip side of the main level, while to the raise the coal thins down to about 2 feet.

The Western Fuel Co. has accomplished much in the operation of this mine which helps considerably to maintain this firm's daily output of nearly 3000 tons derived from three mines. Hopes are entertained of a still further increase which will augment the production to the coveted 1,000,000 tons for the year's operations.

Recovery of Byproducts in Coke Manufacture

By M. MEREDITH
Liverpool, England

SYNOPSIS — *The employment of byproduct ovens in preference to those of the beehive type has greatly increased in Britain in recent years. The present war has stimulated byproduct coking largely on account of the demand for high explosives made from certain of the byproducts. Future practice will doubtless demand the mixing of coals before carbonization is begun.*

THE erection of modern coke ovens with the necessary appliances for the saving of the byproducts in coal, and the extraction and working up of the various products, must ultimately come into use everywhere and is a matter which requires serious consideration on the part of all coke manufacturers.

With the gradual disappearance of the old prejudices against coke made in the byproduct ovens, the modern process has now come into use and begun to assert itself. In 1898, in England, 1¼ million tons of coal were carbonized in byproduct coking ovens; in 1905, the quantity of coal so treated reached roughly 3½ millions, and in 1909, 7½ millions of tons. Evidence given before the royal commission on coal supply in England shows that the value of the byproducts will not only pay for the working of such coke plants and provide a profit, but will also pay for the capital outlay within 10 years.

In the United States modern coking and byproduct plants have been erected in many districts and are extensively operated. In Canada, in 1915, there were only two byproduct coke-oven plants, yet these two were responsible for two-thirds of the total coke production of the Dominion.

Modern byproduct recovery coke plants have recently been installed in certain places as a means of supplying city gas, but such installations are at present only possible where there is a good demand for metallurgical coke. It is not improbable that, in years to come, this matter will receive serious consideration and coke plants will be fitted with modern appliances for the saving of the byproducts. With the rapid depletion of coal supplies this will be rendered highly necessary.

The wasteful loss of valuable material by the beehive process of carbonizing coal must sooner or later be considered, and the modern process introduced in the manufacture of coke, the whole question being a national and economic one. There has been a decided prejudice against the use of retort-oven coke, the fuel from the beehive ovens being more in demand for use in blast furnaces. This preference is now disappearing, and it is generally recognized that retort ovens make as good a coke as beehive ovens, and give a high yield in coke when operated on ordinary coking coals. Beehive ovens are stated to burn about 10 per cent. of the coal itself —that is, if a coal will yield 75 per cent. of coke in a retort oven, probably only 65 per cent. would be obtained from a beehive oven.

Germany owes largely to her modern methods of treatment of coal and coke the large amount of high explosives she has been able to use against the Allies in this war. The byproduct coking plants which are favored in England are the Otto-Helgenstock, Simon-Carves, Koppers, Somet-Solvay, Simplex, Coppée and Hussener. According to A. W. Belden (United States Bureau of Mines): "The yield of byproducts is dependent on the working of the ovens and can be regulated within certain limits at the option of the operator. The manipulation of the ovens depends in large degree upon which product is more desired. Ideal conditions are reached when a coke possessing the chemical and physical properties necessary for the purpose for which it is intended is produced, together with a maximum yield and quality of byproducts."

True Distillate from Byproduct Oven

In a byproduct oven a true distillate of coal is obtained, the process being under control so that it can be regulated. From the ovens the volatile matter passes through the uptake pipes and is driven along the ovens by means of exhausters. En route to the exhausters it passes along a hydraulic main laid along the top of the ovens to a chamber where it deposits tar and a small portion of ammonia. The gas having deposited the greater part of its tar is then passed through air coolers, water coolers, scrubbers, exhausters, tar extractors and ammonia washers, to a gas holder. After the gas has been deprived of its tar and ammonia it is then treated by certain heavy creosote oils, which absorb from it the benzol contained therein, and benzols of various degrees of strength are manufactured therefrom. The following is a typical analysis of the gas produced:

	Per Cent.
Hydrogen	50.0
Saturated hydrocarbons	34.0
Unsaturated hydrocarbons	4.0
Carbon monoxide	8.0
Carbon dioxide	2.0
Oxygen	..
Nitrogen	2.0
	100.0

Inflammable constituents of this gas amount to 96 per cent.

To the ammoniacal liquor from the ammonia washers lime is added, and the mixture then distilled, the ammonia (NH_3) being passed into sulphuric acid to form ammonium sulphate; or it is pumped into a condenser and saturated to form stronger liquor, varying in NH_3 contents, but usually containing between 15 and 20 per cent. The quantity obtained depends on the nitrogen content of the coal, but other factors, such as the shape of the retort ovens, temperature, etc., have an influence on the fraction of nitrogen which is given off as ammonia.

Nitrogen may be present in coals to the extent of 1 to 2 per cent., but in gas works probably only about

14 per cent. of this is saved as ammonia in the gas, although the percentage may be increased by the addition of lime to the coal, or by passing steam through the retort during distillation. In the dry distillation of coal about 2 per cent. of the nitrogen of the coal is evolved in the form of cyanide and recovered.

NH_3 yields per ton carbonized at gas works from different coals:

	Lb.
Pelaw Main, Maitland	91
Newcastle	7½
Western district	4
Southern district	2½

The ammoniacal liquor, after concentration, is bought on the NH_3 content basis by the manufacturers of ammonia, by whom it is largely made into anhydrous ammonia (used for refrigerating purposes), or into sulphate of ammonia.

Tar and Other Products

The composition of the tars varies with the apparatus employed, method of working and class of coal coked. The following is a typical analysis of gas works tar:

On Distillation Yields	Per Cent.
Water	2.20
Light oil	5.90
Middle oil	12.30
Heavy oil	12.00
Anthracite oil	16.00
Pitch	49.70

Specific gravity, about 1.10.

The following amounts are stated to be obtained from the distillation of tar at ordinary gas works:

From One Ton of Tar Distilled:		
Ammoniacal liquor	3	gal.
Crude naphtha	10	gal.
Light oils	4	gal.
Carbolic acid	1	gal.
Creosote	56	gal.
Anthracine cake	3	lb.
Pitch	13	cwt.

The light oils, which are from 3 to 6 per cent. of the original tar, contain:

	Per Cent.
Phenols	5.0
Pyridines	1.0
Sulphur compounds	0.1
Neutral substances	1.0
Hydrocarbons	80.0

The middle oil, which constitutes 8 to 12 per cent. of the tar, contains:

	Per Cent.
Phenols	10.0
Cresols	20.0
Naphthalene	30.0
Residue, heavy oil	4.0

In addition, the oil contains considerable amounts of pyridine and other bases. The heavy oil, 10 to 12 per cent. of the tar, a semi-liquid product, contains:

	Per Cent.
Naphthalene	30.0
Cresols and homologues	10.0
Pyridine bases	6.0
Hydrocarbons (?)	40.0

Crude naphtha is usually worked up into a standard strength, which yields 20 per cent. of benzol when distilled up to a temperature of 120 deg. C. This is sold to the dye makers, who break it up into benzol, toluol, solvent naphtha, burning naphtha and creosote. The dyes are made from benzol and toluol. Solvent naphtha is used by mackintosh makers and others for dissolving india rubber; burning naphtha is employed for consumption in lamps, etc.; creosote for the preservation of timber, etc.

About a 20 per cent. quality of light oil distills over at 160 deg. C. This is sold to the refiners, who convert it into toluol, solvent and burning naphtha and creosote, for all of which products there is a growing demand.

Carbolic acid is made by washing the crude naphtha and light oils with a 10 per cent. caustic soda solution. The aqueous alkaline liquid is drawn off from the oil, and steam blown through, in order to volatilize any trace of the naphthalene or other hydrocarbon that it still contains. The alkaline liquid is then neutralized by sulphuric or carbonic acid, and the precipitated oily layer or phenol drawn off and fractionally distilled in stills provided with zinc or silver condensing coils. The distillate is crystallized out by cold and separated from the still fluid cresols by a centrifugal machine. Phenol is thus obtained, almost chemically pure, as a white solid. It is used principally for making picric and salicylic acids. The cresols separated from the phenol occur as a fluid mixture of these isomers. They are much used for disinfecting purposes.

Pitch readily commands a sale for asphalting and for many other purposes. Large quantities of pitch were formerly shipped to the collieries of Belgium and the north of France and used for the manufacture of briquettes, the pitch acting as a binding material.

If cheap tar or pitch is produced in sufficient quantity as one of the byproducts in coke manufacture, it could be utilized largely for briqueting the fine dust and coal which accumulates in large quantities in a colliery which yields a coal unsuitable for coking. In certain centers there is a large amount of fine coke or breeze obtained from the coke ovens, which if briquetted would make an excellent fuel. To briquet the fine coal it is washed in the ordinary way and dried, then mixed with 7 or 8 per cent. of tar and molded into bricks by machinery.

The briquettes possess the following advantages: They are less friable, when properly made, than coal lumps, and being of regular shape they are more readily stored. For domestic use they have the advantage of not soiling the hands, and they can be purchased by count, so that a check is kept on the weight supplied. The briquetting of the fine coal dust will become an important industry, as the supplies of the better class of coals become reduced.

Many Valuable Byproducts Recovered

Trinitrophenol is used extensively for filling shells, and its salts have formed constituents of priming compositions and of powders used as propellants. The honey-yellow color of the molten acids suggested the name of "melinite," which it received in France, while in other countries it is designated as "liddite," "pertite," "ecrasite," or "schimose," in Japan. Trinitrotoluene is manufactured from pure toluene. It has sprung into prominence as a substitute for picric acid, chiefly owing to its freedom from acid properties, its low melting point and great stability. Trinitrotoluene has been introduced in the French service under the name of "tolite." The Spanish Government calls it "trilit," and it is also known as "trolyl," "trinol," etc.

The first Australian plant for the making of coke and saving of byproducts was erected in Newcastle (the Australian Coking and Byproduct Co.), but is not now working. The Broken Hill Proprietary Co.'s works, erected at Newcastle, may be said to be the successful pioneer of the byproduct industry in New South Wales. This company makes metallurgical coke, ammonia, gas, tar, etc. The tar, for treatment and extraction of the

byproducts contained therein, is taken over by De Meric, Ltd., tar distillers. This firm has works at Hamilton and has lately erected an up-to-date plant adjoining the Broken Hill Proprietary steel works. The chemist, John Paton, has supplied the following information in regard to the work taken in hand at these works.

The tar is distilled and fractionated into light, middle and heavy oils, distilling at temperatures of 100, 120 and 170 deg. C. respectively. From the light oil benzol, toluol and solvent naphtha are made. It is further treated, and pyridine, xylol, benzol and toluol obtained, the benzol and toluol being brought up to 90 per cent. strength. From the middle oil carbolic-acid crystals, neutral oil, cresylic acid and naphthalene are made; also it is proposed to manufacture disinfectants later on. The heavy oil by fractionation yields creosote, anthracene and dead oil for lubrication. The tar will be carried into pitch, and from the pitch lampblack will be made.

Coke Making and Byproducts Saving

For the making of good metallurgical coke with the byproduct ovens, and to obtain a maximum result from the byproducts, it probably will be found necessary to blend certain coals with others giving higher percentages of volatile matter. The high-class coking coals in some districts are gradually being depleted and experiments will be necessary to blend them and so obtain the maximum coke and byproducts contained in other coals. According to A. W. Belden (United States Bureau of Mines), "the best results seem to be obtained when coals are mixed in proportions that give about 25 per cent. of volatile matter in the mixture, and this practice is generally followed throughout the country where mixed coals are used."

The great waste of gas and loss of all byproducts by the use of the beehive ovens in the coking of fine coal to produce a metallurgical coke only will have to be seriously considered in the erection of future plants, and the question of costs thoroughly gone into; also the suitability of coals, separately or blended, for the making of metallurgical coke, byproduct extraction and the utilization of the gas for power, or heat generation.

Legal Department

Iowa Mine Safety Law—Under the Iowa statutes, a miner need not notify his employer that a mine roadway needs timbering in order to render the latter liable for injury resulting from negligent failure to timber. (Iowa Supreme Court, Erickson vs. Maple Block Coal Co., 167 Northwestern Reporter, 105.)

Refuge Holes in West Virginia Mines—The duty to see that refuge holes along motor roads in West Virginia coal mines are maintained, as required by the statutes of the state, rests on the mine foreman, not on the mine owner, and for injury to a miner resulting from defects therein the mine owner is not liable. (West Virginia Supreme Court of Appeals, Kinder vs. Boomer Coal and Coke Co., 95 Southeastern Reporter, 580.)

Negligent Operation of Mine Motor—Although it was not negligent for a mine motorman to back his motor a short distance without reversing the trolley, it was negligent to move the motor so carelessly as to permit the trolley to leave the wire, causing injury to a boy employed to attend the trolley, and the employer is liable for such injury. (Kentucky Court of Appeals, Borderland Coal Co. vs. Miller, 201 Southwestern Reporter, 299.)

Effect of Indiana Employers' Liability Act—Under the Indiana Employers' Liability Act, a coal operator is liable for death of an employee while assisting in undercutting a vein of coal and due to negligent failure of other employees to remove coal loosened from the vein; the injured employee being himself free from contributory negligence. (Indiana Supreme Court, J. Wooley Coal Co. vs. Tevault, 118 Northeastern Reporter, 921.)

Cancellation of Federal Coal Land Patents—Under the Federal statutes which forbid more than one entry upon public coal lands by the same person or association of persons, entries cannot lawfully be made in the interest of persons or associations who have exercised their own right of entry. Patents based on entries pursuant to a scheme to enable a person or association to obtain lands in excess of the area allowed by such statutes are fraudulent and subject to cancellation. (United States Circuit Court of Appeals, Eighth Circuit; United States vs. Kirk; 248 Federal Reporter, 30.)

Liability of Corporate Promoters—Promoters of a corporation are legally obligated to use the utmost good faith toward the company and the subscribers to its stock. If the promoters undertake to sell their own property to the corporation they are bound to disclose the whole truth respecting it. If they fail to do this, or if they receive secret profits out of the transaction, either in cash or stock, the corporation may elect to rescind the purchase or to hold the promoters accountable for the secret profits. (West Virginia Supreme Court of Appeals, North American Coal and Coke Co. vs. O'Neal, 95 Southeastern Reporter, 822.)

Injury to Inexperienced Miners—When an older and experienced miner is delegated by his employer to instruct and qualify an inexperienced employee for service the employer becomes liable for injury to the latter directly due to negligence upon the part of the instructing employee. Hence, if plaintiff, a miner, was ignorant of dangers arising from the presence of unexploded charges left in coal where he was directed to work, failure to fully instruct him as to the danger and how he might avoid injury was actionable negligence, rendering the operator liable for injuries sustained by plaintiff in exploding such a charge when he struck his pick into the coal. (Pennsylvania Supreme Court, Jelic vs. Jamison Coal and Coke Co., 103 Atlantic Reporter, 300.)

Well Settled Principles Applied to an Unusual Accident—Plaintiff was employed to assist a mine engineer in making certain measurements on an inclined entry. Near the top of the entry was a loaded coal car, held in position by a piece of an old tie set between the end of the car and a tie in the track. The engineer told plaintiff to wait where he was, near the car, until the engineer should make some measurements nearby. Plaintiff sat down in the middle of the track, with his back against the bumpers of the car, and conversed with the mine boss concerning what work plaintiff should do when through assisting the engineer. As the engineer returned, he brushed or stumbled against the prop that was holding the car, resulting in the prop and car being released, and in plaintiff being seriously injured through being dragged in front of the car until it was stopped after moving about 45 ft. Plaintiff sued for damages and recovered verdict for $1200. Setting aside the recovery and ordering a new trial, on the ground that the jury was not properly instructed as to the law of the case, the Kentucky Court of Appeals holds that it was for the jury to determine whether plaintiff was guilty of contributory negligence in sitting in front of the car; that plaintiff was injured while in the line of his duty; but that defendant employer could not be held liable on account of any negligence on the part of the engineer unless that negligence should be found to be gross, because plaintiff and the engineer must be regarded as fellow servants within the meaning of the established rule of law in Kentucky that an employer is not liable for injury to an employee caused by negligence of a fellow servant unless the negligence was gross. (Edwards vs. Borderland Coal Co., 199 Southwestern Reporter, 792.)

Tabulation of Entry Progress

By O. H. Hampsch
Washington, D. C.

The tabulation of the progress of entries in a mine will often prove of much value to the average mine foreman, superintendent or operator. The data in most cases are generally obtained from yardage measurements which the mine foreman or engineer makes at regular intervals.

In the table given below, which may be used as a standard, or a similar table devised to meet any special case, the total entry progress for each semi-month the advance for any particular entry for each month or year, and the total entry progress for the year can be found in a few moments' time.

NAME OF MINE.....

ENTRY PROGRESS FOR PERIOD JAN. 1, 1918, TO JAN. 1, 1919

Name of Entry	Jan.		Feb.	Mar.		Apr.		May		June		July		Aug.		Sept.		Oct.		Nov.		Dec.		Total
Main entry (St. N.)	32	37	41																					
Main air course	26	33	27																					
First east	15	17	16																					
Second east	14	20	23																					
First west	26	32	37																					
Second west	35	22	39																					
Third east	20	19	21																					
Fourth east	28	25	27																					
First right	16	14	5																					
Second right	11	20																						
Main entry (St. S)	42	47	43																					
Main (air course)	49	51	52																					
First east	29	31	26																					
Second east	34	37	31																					
First left	5	11	16																					
Second left	21	19	17																					
Total																								

Total for year.....

The arrangement of the table shows an easy method of tabulation which, however, may be adapted or changed to conform to any size of lettering that may be used. The table may be made upon tracing cloth or printed upon ordinary drawing detail paper and mounted upon a cardboard back.

Uses of Peat in Agriculture

The increased use of peat and its products in compounding fertilizers may also afford relief from the present shortage of fertilizing minerals in the United States. Peat has long been used in agriculture in this country, having been either applied directly to the land or used as a filler for commercial fertilizers. In view of the curtailment of the imports of potash and nitrates since the war began and the consequent shortage of fertilizers the time has come when the producers of peat might make better known its value in agriculture.

Analyses of the peats of the United States show that they are very rich in combined nitrogen, from 70 to 85 per cent. of which, a proportion that in some peats amounts to more than 2 per cent. of their dry weight, may be recovered in the form of ammonium sulphate, one of the costly ingredients of modern commercial fertilizers. Peat may also be a source of nitrates. A culture bed of peat, if treated with a dilute solution of ammonium sulphate and then inoculated with nitrifying organisms, is said to yield 0.82 per cent. of nitrates, and with repeated treatment about 4 per cent. It has not yet been shown that this process will produce nitrates on a large scale, but in view of the rare occurrence and present shortage of these salts, which are so essential to agriculture and to the explosives industry, the process strongly invites further and larger experiments.

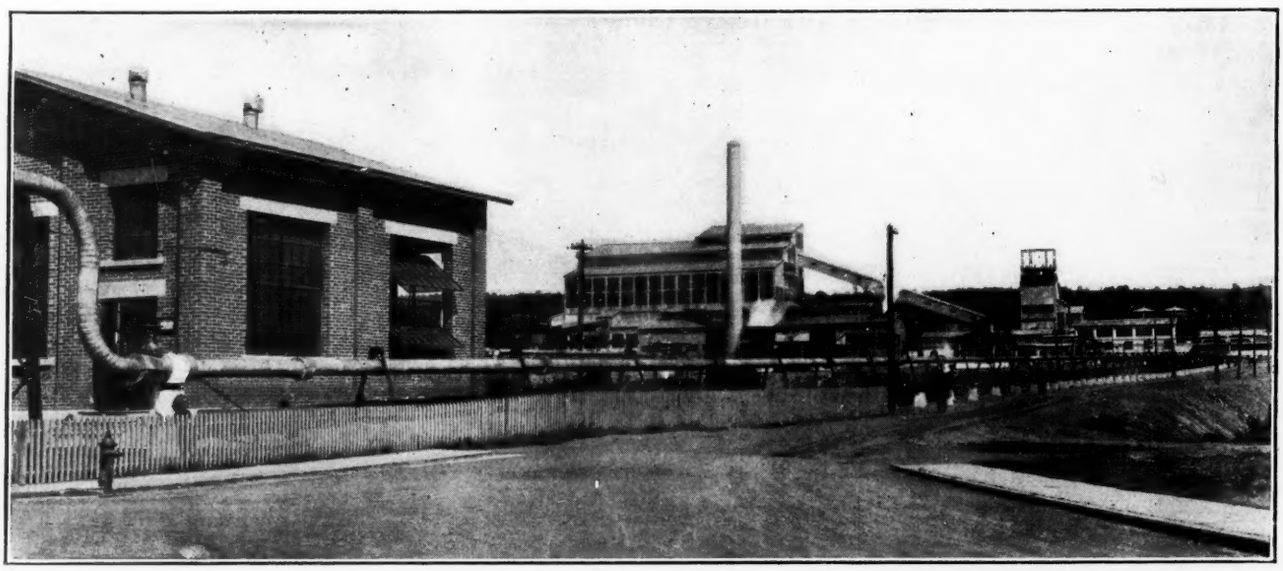
Peat mull may be profitably employed as an absorbent of the valuable nitrogenous liquids of stables, which are ordinarily wasted. When so used it not only absorbs liquids but checks decomposition and absorbs gases, so that it should be an effective deodorizer and disinfectant. For this use it is superior to lime, ashes, and some of the more expensive disinfectants, and it is a nearly ideal material for use in earth closets and other receptacles for moist waste organic matter.

Peat has also been used successfully in this country as bedding for stock and in compounding stock feed.

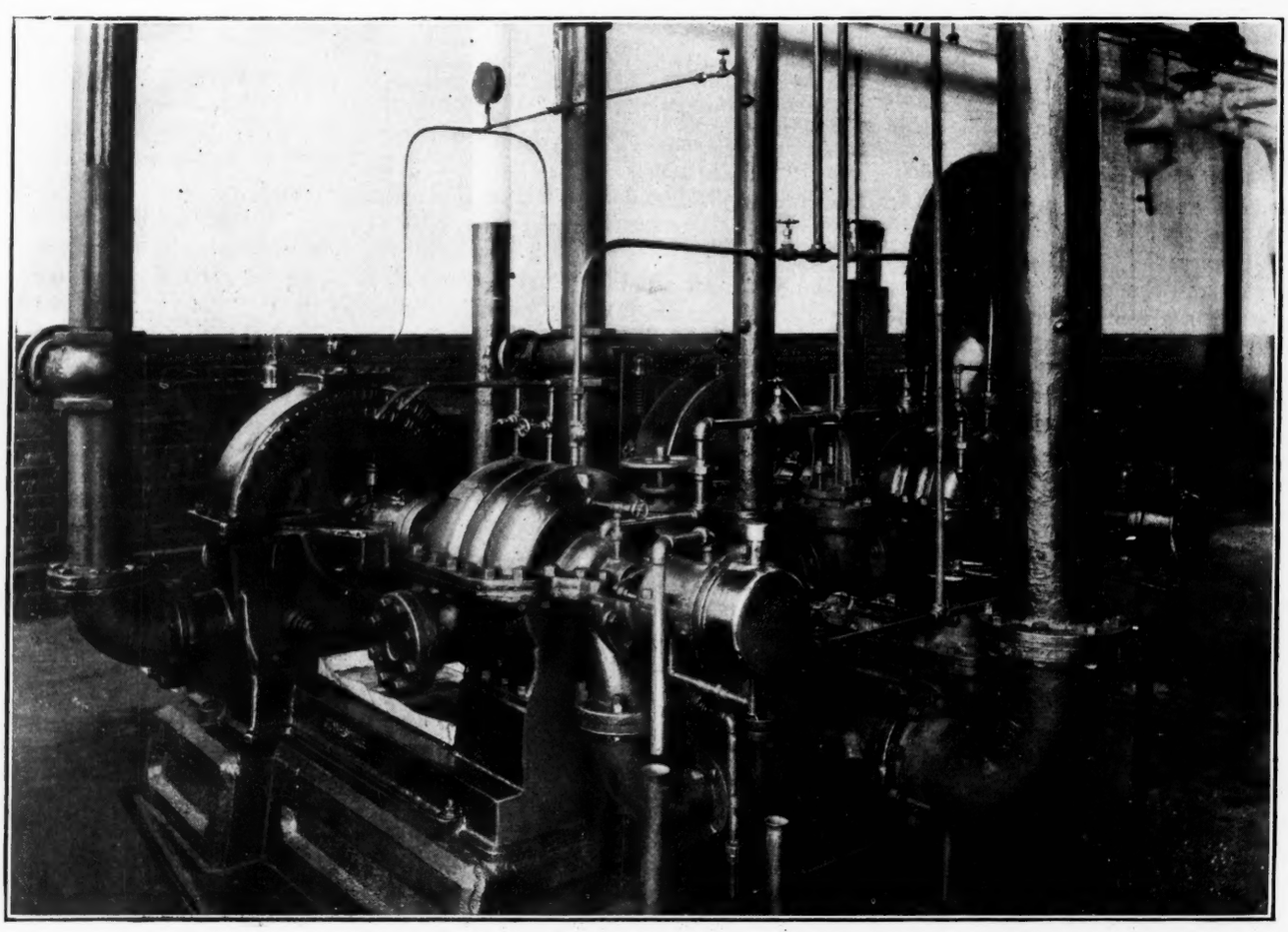
Peat has frequently been used as a source of charcoal and coke, of various byproducts from coke retorts, such as those obtained from the distillation of wood and of fuel and illuminating gas, as well as in making paper, substitutes for wood, and packing material. The prospective value of the peat deposits of the country as a source of these products is much larger than their value as a source of fuel.

Information with regard to the occurrence, distribution, and production of peat in the United States will be furnished on application to the United States Geological Survey, Interior Department, Washington, D. C., and information on the use of peat for fuel and other purposes may be procured from the Bureau of Mines, Interior Department, Washington, D. C.

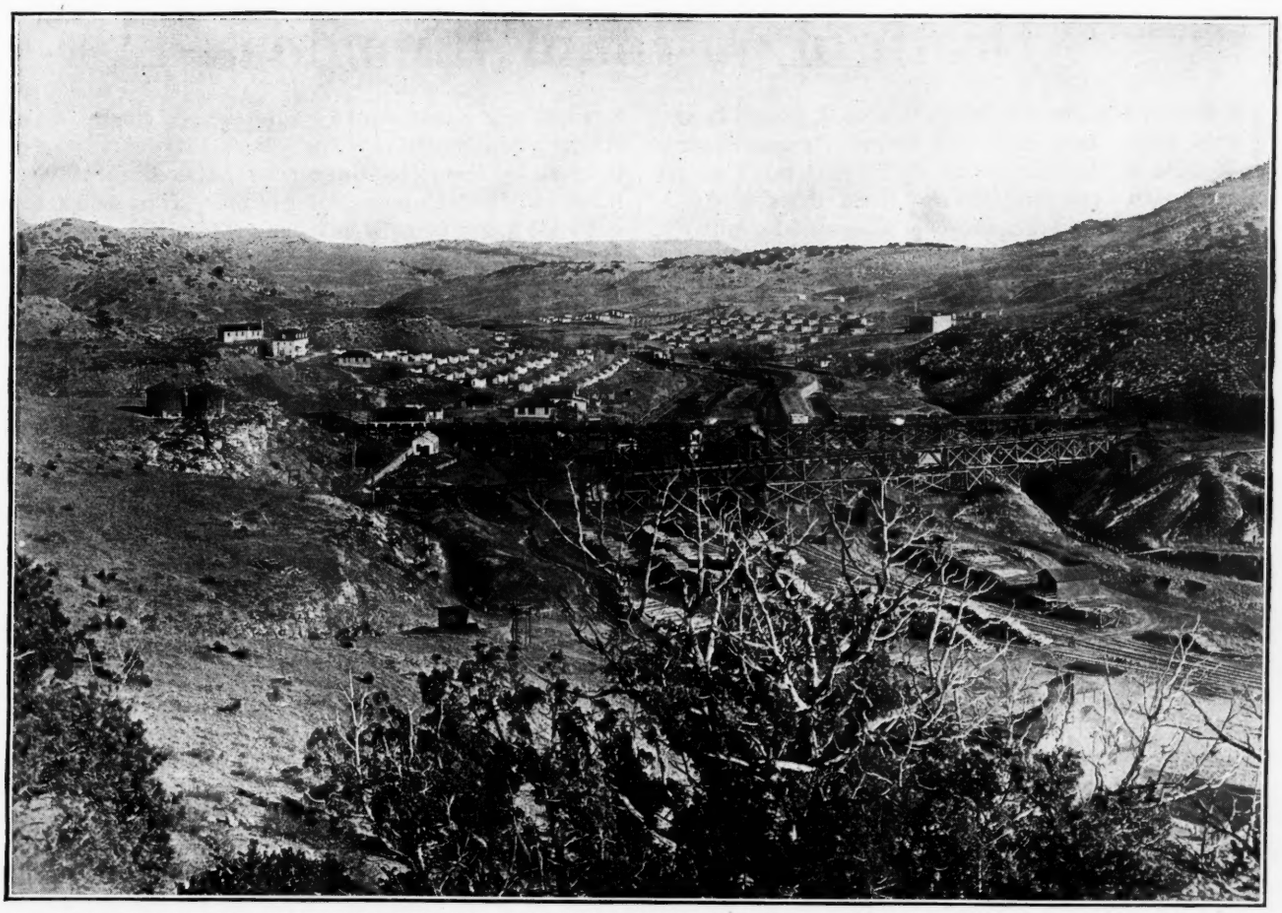
SNAPSHOTS IN COAL MINING



VIEW OF THE UNDERWOOD COLLIERY OF THE PENNSYLVANIA COAL CO., THROOP, PENNSYLVANIA



TERRY STEAM TURBINE UNITS AT UNDERWOOD COLLIERY OF THE PENNSYLVANIA COAL CO., THROOP, PENNSYLVANIA

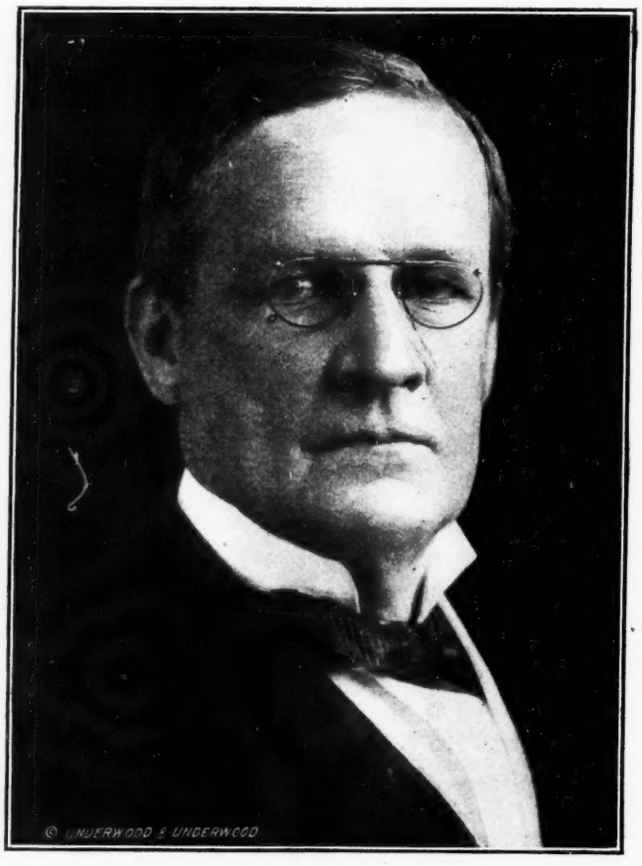


VIEW OF TIPPLE AND WORKS AT THE MINES OF THE VICTOR-AMERICAN FUEL CO., DELAGUA, COLO.; TOWN OF DELAGUA IN BACKGROUND

MINERS PICKING AND LOADING COAL AFTER SHOT HAS BEEN FIRED AT FACE OF CHAMBER, CONSOLIDATION COAL CO., FAIRMONT, WEST VIRGINIA

Death of Viscount Rhondda

IT IS hard to know whether Viscount Rhondda was best known here as David Alfred Thomas, leading Welsh coal operator, or as Baron or later Viscount Rhondda, the Food Controller of Great Britain. D. A. Thomas entered closely into our national life, when in 1913 he made two trips to America purposing to secure large holdings in West Virginia. It was confidently prophesied at that time that a large area of coal land in the "Mountain State" would shortly pass into his hands and that, as a result, the United States would enter under every favorable condition into the export business. But the scheme, for some unknown reason, fell through. Mr. Thomas was here again in March, 1914, this time on his way to Canada to provide for the building of a line 1500 miles long, to be known as the Pacific, Peace River & Athabasca R.R., the purpose being to tap the Ground Hog coal fields. Even at that time it does not appear that the proposed West Virginia venture had been definitely given up. The coal properties of that state were not at that time doing so profitable a business as in times past, and the hour was propitious for purchase. Mr. Thomas was much surprised at the low cost of extraction and at the even more remarkable low selling cost. In fact, he had something of much interest to say when in Great Britain as to the great differences existing between mine operating costs in America and abroad.



OPERATOR WHO CONTROLLED THE BRITISH FOOD

D. A. Thomas was born Mar. 26, 1856, at Adare, in Monmouthshire. While this county is Welsh in all its history and characteristics it lies immediately adjacent to the line between England and Wales, and is actually on the English side of the border as England is now delimited. Thomas graduated from Caius College, Cambridge, in 1880, and three years later got his master's degree. He was the son of a colliery owner, but he did not find in that fact a reason for taking charge of the business without first obtaining a practical and underground knowledge of every method of operation.

In 1888 he entered the firm of Thomas & Davey, coal sales agents, and at the same time became member of Parliament for Cardiff, which constituency he served till 1910. In that year he became senior member of his firm as well as managing director of the Cambrian combine and other colliery interests in South Wales. His trips to investigate the advisability of taking an interest in American enterprises followed three years later, but the war prevented his plans from being consummated, and in 1915 he came to America as business agent of the British Government. On this occasion he reorganized the munition industry of Canada, bringing the Shell Committee of the Dominion under direct control of Lloyd George, then the minister of munitions.

David Thomas was on the "Lusitania" when it was sunk, and the exposure is said to have shortened his life. But in the few years yet remaining he had a chance to perform a large service for his country. He was appointed Food Controller and immediately set himself to stop speculation and profiteering in food. He took over all the crops in 1917. Later he announced the formation of an Inter-Allied Food Council to purchase in the United States food supplies for Great Britain, France and Italy in connection with Herbert Hoover, our own great mining celebrity, who, like the mining man of England, had been placed in charge of the Food Administration. Strange to say, Lord Rhondda's thankless job met with generous approval in Great Britain. The more stringent the control the greater the satisfaction. The loose regulation of earlier days was of such a character that long queues of persons assembled at the stores, but after Lord Rhondda regulated matters the ration, while painfully slim, was certain and not so hard to obtain. The situation was indeed quite desperate. The United States had largely suspended shipments of food in order to provide shipping for soldiers, and there was nothing for Lord Rhondda to do but to slip the belt on the portly person of John Bull not one, but several notches. That the latter forgot to grumble and protest is a tribute to the Welsh coal master. Lord Rhondda boasted that he allowed himself less food than he apportioned to the public he regulated.

In fact, there are not a few who believe that his disease resulted from the weakened vitality that was the outcome of his asceticism and devotion to duty. Thus passed away, on July 3, the "British Coal King," to the great regret of his fellow countrymen—an extremely democratic man, and not greedy for honors.

New Classification for Ohio

In order to eliminate the intricacies of the thin and thick vein method of basing prices in Ohio, a new classification for that state has been adopted as follows:

	Run-of-Mine	Prepared Sizes	Slack or Screenings
District No. 1—County of Meigs and Townships of Cheshire and Addison in County of Gallia	$2.35	$2.60	$2.10
District No. 2—Counties of Vinton, Jackson, Lawrence, Sciota, Pike, and County of Gallia except Townships of Cheshire and Addison	3.00	3.25	2.85
District No. 3—Counties of Hocking and Athens, and Townships of Coal and Monroe in the County of Perry and Township of Homer in the County of Morgan	2.10	2.35	1.85
The Bailey Run, or No. 7 Seam	2.50	2.75	2.25
District No. 4—Counties of Washington and Noble, County of Morgan except Township of Homer, and County of Perry except Townships of Coal and Monroe	2.50	2.75	2.25
District No. 5—Counties of Guernsey and Muskingum and Township of Warren in Belmont County	2.25	2.50	2.00
District No. 6—Counties of Holmes, Tuscarawas, Carroll, Coshocton, and Townships of Monroe, Franklin, Washington and Freeport in County of Harrison, and Townships of Washington and Yellow Creek in County of Columbiana, and Townships of Brush Creek, Saline, Springfield, Ross and Knox in County of Jefferson	2.50	2.75	2.25
District No. 7—Counties of Trumbull, Portage, Summit, Mahoning, Medina, Wayne and Stark, and County of Columbiana except Townships of Washington and Yellow Creek	3.00	3.25	2.55
District No. 8—County of Monroe, County of Belmont except Township of Warren, County of Harrison except Townships of Monroe, Franklin, Washington and Freeport, and County of Jefferson except Townships of Brush Creek, Saline, Ross, Knox and Springfield	1.90	2.15	1.90

To the above prices there may be added the 45c. allowance for wage increase if the producing companies are entitled to add such allowance under the President's Order of Oct. 27, 1917.

Lightless Nights Expected to Save Much Coal

The new "lightless" night order is expected to save much more coal than did the one of last year. In fact, all lighting and heating are to be reduced to a war basis. Every effort is to be made to reduce the fuel consumption in office buildings and apartment houses. Eugene C. Eppley, of Sioux City, Iowa, the president of the Hotel Men's Mutual Benefit Association, has been put in charge of the hotel section of the Conservation Bureau of the Fuel Administration. It is expected that a considerable saving of fuel will be effected in hotels by reducing the amount of heat and light used.

Curtails Coal Supply to Breweries

Only 50 per cent. of the average annual requirements of coal is to be furnished to breweries during the twelve months beginning July 1. The average is to be based on the consumption during 1915, 1916 and 1917. The restriction applies to the brewers of non-alcoholic cereal beverages as well as to those which contain alcohol. The regulation allows the operators of breweries to concentrate their brewing at one plant with the right to the same quantity of fuel they would have used had their plants been operated individually.

Margins Set for Run-of-Mine Coal

A separate classification for run-of-mine coal, from which a certain portion of lump has been screened, has been added to the price schedule by the Fuel Administrator. The price of this modified mine-run is not to exceed the Government price applicable for screens plus the following percentages of the margin between the price for mine-run and screening: Run-of-mine passed through 2-in. openings, 40 per cent. of such margin. Run-of-mine passed through 3-in. openings, 75 per cent. of such margin. Run-of-mine passed through 4-in. openings, 90 per cent. of such margin. Run-of-mine passed through 5-in. openings, 95 per cent. of such margin. Run-of-mine passed through 6-in. or larger openings shall take the applicable Government price for run-of-mine.

Dr. Garfield Would Tax Excess Coal Profits

Without expressing any belief as to the accuracy of the Federal Trade Commission's findings in regard to profits in the operation of coal mines, Dr. H. A. Garfield points out that most of the 1916 output was under contract at high prices before the putting into effect of the President's schedule. He admitted, of course, that the price had to be made high enough to meet the necessities of the high-cost mines in the immediate section of low-cost mines. The emergency, he said, made it necessary to stimulate production even if large profits were made by some operators.

Dr. Garfield said the plan of buying the Nation's entire output and selling it at a fixed price to the consumer would not be conducive to maximum production. He suggested that excessive profits could be reached by excess profits taxation, or the Government could buy all the coal, paying each mine a fair profit over its costs of production.

Weekly Production Statistics

Production figures for the week ended June 29 are as follows: Bituminous coal, 12,458,000 tons; anthracite forwardings, 41,641 cars; beehive coke, 604,000 tons; byproduct coke, 496,396 tons. With the exception of beehive coke, production in each case was greater than that of the week preceding.

Bituminous production shot up markedly during the week under review, being an increase of 3.8 per cent. over that of the week preceding, and 7.5 per cent. over that of the corresponding week of last year. In fact, the week's showing is second only to that of the week ended June 15, which surpassed all previous performances in the history of the coal industry in the United States.

The anthracite forwardings were 471 cars in excess of those for the week ended June 22, but still is less than the best performance made in recent weeks.

Shortage of yard labor continues to be by far the serious factor limiting beehive-coke production. For this reason, production during the week ended June 29 was 57,000 tons under that of the week ended June 15. Little difficulty would be experienced, it is believed, in maintaining production above 700,000 tons if the labor could be secured. The byproduct ovens are now operating at better than 90 per cent. of full-time capacity. Car shortage no longer is a factor, and fewer ovens were shut down for repair work. The principal gains were made at Pennsylvania and Alabama ovens.

The figures referred to in the foregoing are estimates made by C. E. Lesher, the geologist in charge of coal statistics for the United States Geological Survey.

New Prices on Coke and Breeze

New prices on coke and breeze have been announced as follows:

Gas coke, in districts where anthracite coal is not obtainable: Run-of-retorts, $5.50; run-of-retorts screened above ¾ in., $6; screened and sized about ¾ in., $6.50; screened and sized, between ½ and ¾ in., $4.50. The lowest published coke freight rates may be added to the foregoing prices.

Gas coke, in districts where anthracite coal is obtainable: Screened and sized above ¾ in., same price as established for stove anthracite in the same locality; run-of-retorts, screened about ¾ in., 25c. less than the price of stove anthracite; run-of-retorts not screened, 75c. less than the price of stove anthracite. The prices are to apply on less-than-carload shipments and on those delivered direct to consumers for household purposes. Coke sold for other purposes is to take the same price as gas coke in the localities where anthracite is not obtainable.

The maximum price for breeze is one-half that established for run-of-retort coke unscreened, made in gas retorts where such breeze is produced.

Coke made in beehive ovens, crushed, over ¾ in., 30c. may be added to the price for 72-hour selected foundry; prepared sizes, clean, dried, screened, under ¾ in., $1 less than blast-furnace coke made at beehive ovens where such coke is produced; breeze, one-half the price of blast-furnace coke.

Byproduct coke f.o.b. cars, over ¾ in., 50c. may be added to run-of-oven price. This is to include all prepared sizes of clean, hard coke over ¾ in. whether crushed or screened by hand or mechanically. Prepared sizes under ¾ in. $1 less than the price for run-of-oven. Breeze, one-half the price of run-of-oven.

Coke produced in Utah, smelting or furnace, $8.50; 72-hour selected foundry, $9.50.

Retailers Must File Coal Reports

Each retailer of coal in the United States must report to the Fuel Administration the amount of his coal receipts, his deliveries and his stock on hand. This plan has been in operation for some time in New England, and now it is to be extended throughout the country. For failure to comply with regulations in this regard, 750 retailers in New England recently were given five days in which to file their reports or have their supply cut off.

Railroad Administration Denies Liability for Coal Lost in Transit

The National Coal Association has taken issue with the stand taken by the Railroad Administration that it is not to be liable for losses of coal by theft when it is loaded in an open-top car or by falling off when it is loaded above the sides of the car. The Railroad Administration takes the position that open-top cars are furnished for the convenience of the shipper and the consignee, and that it should not be held responsible for the many claims which are made for losses in transit from such cars.

The National Coal Association takes the stand, in its representations to the authorities, that it is a dangerous precedent to establish in the minds of people that property being transported by the Government is unprotected by a Government agency. The ruling also is held to influence adversely the loading of cars as heavily as is possible. The association also takes issue with the contention that the open-top car is operated primarily for the convenience of the consignor and the consignees. Numerous examples are cited showing that the volume of coal carried would be reduced enormously if it had to be loaded in closed cars.

Prices Fixed for Charcoal

Prices have been fixed for charcoal by the Fuel Administration as follows: Lump in bulk, 20c. per bushel; lump in bags, 22c. per bushel; screenings in bags, 20c. per bushel. The prices apply on car lots sold to consumer or dealers for wagon delivery. Any commissions are to be paid to the vendors and shall not be added to the price. The bags are to be returnable.

Domestic Consumers to Be Rationed

So rapidly is the demand for coal increasing for war work, that it may be necessary to ration the domestic consumer this winter. Public announcement to this effect has been made by the Fuel Administrator. If it is necessary to apply a rationing system, the amount allowed will be as much as is found sufficient, after scientific investigation, to provide a temperature of 68 deg. This is to be based not on the consumption of last winter, but on the amount which will be required with every possible conservation.

THE LABOR SITUATION

EDITED BY R. DAWSON HALL

General Labor Review

The railroads are supplying the coal mines with more cars. But, given a little imagination, one does not need to be directly informed that coal cars are being more regularly delivered, for it could be deduced readily from the fact that the Fuel Administration has at last appointed a Production Division. So long as the railroads were wholly at fault, such a division was entirely unnecessary and would have been merely provocative of ill feeling. Distribution, therefore, received the undivided attention of Dr. Garfield. Now the burden shifts, and the Fuel Administration is found resting, at least partly, on the other foot. In fact there is a possibility that Dr. Garfield may after a while find himself wholly poised on that little used member.

That this is the case is attested also by the hullabaloo rising from all, or at least most, of the field. One wonders why there is such a loud recrimination, but we have heard the like before. When production is demanded there is sure to be altercation, every one making excuse and no one able to give a reason.

No Reasons Exist for Short-Time Service

The miner is trying to explain that the reason he does not stay underground eight hours is because of this and that. But really the only real reason why he leaves the mine early is because he is unwilling to stay there for the specified eight hours. There is nothing to compel him to come out sooner, except his wish to do so. He should stay underground till the mine closes down. He has no right to say that he will go home because his place is not in shape or the turn is slow. He should persevere the full eight hours. The soldier does not leave the trench because no Germans are stirring and because there is nothing for him to do. He waits till there is something to be done and is there to do it. If he isn't there, he is a deserter and in great need of executive clemency.

Last week we recorded the Alabama comments on the attempts to make the slacker work eight hours. This week the same word comes from Illinois, and the anthracite mine workers are in like manner trying to place the blame on the operators. Of course, the operator is partly to blame, but the miner cannot defend himself by blackening the operator. The miner should stay in his full eight hours, slow or fast turn, whether the undercut is delayed or completed; whether there are road wrecks or the cars come regularly; whether there is water or the road is dry. The mine worker has his duty to perform, and only when he has done it can he begin to load blame on his employer.

Operator Needs Advice as Much as Consumer

But the operator needs quite a little advice, counsel and condemnation. We have seen how in Missouri he has been getting those necessary admonitions from the Fuel Administrator. Between ourselves it seems that the operator who produces the coal needs instruction and pressure just as much as the consumer who burns it. And he is going to get it. He cannot go on inefficiently operating with inadequate equipment and ill-handled plant. If he does not amend he will be shut down by the Administration. At least the action in Pennsylvania in regard to high-cost mines seems to foreshadow that. He is even more likely to be penalized for bad management and consequent inefficient operation than for difficult conditions and consequent high wage rates, for the condition of the coal seam is beyond his control whereas good management really is not.

The disputes now raging are natural, and they will do some good if both parties remember, as Kennamer, Farrington and the presidents in the anthracite region appear to do, that the other fellow's failings don't excuse yours. A man must stand or fall on his own comings or shortcomings and not on the performances of others.

The operators' shortcomings are mostly hard to cure. The miner on rising in the morning may say with full intention, "I will stay in the mine till the last trip tonight," but the operator who on rising says, "I will put 100 more mine cars and two more locomotives on the tracks today, for my men need them," is a fit candidate for a lunatic asylum unless he placed his orders for this equipment some months earlier. The operator's shortcomings, it will be seen, take time, money and the coöperation of other parties as well as mere volition.

Day Laborers More Wanting Than Equipment

Nor is it otherwise with the supply of labor needed to comply with Farrington's demand that every working place be in standard condition. In fact the equipment supply is in some ways in better shape than labor supply. An old mine that is shorthanded, unless repairs have not been kept up and headings have not been extended, is equipped for the tonnage it had before it became shorthanded and therefore should not be in a bad case.

The new mines, especially those run by newly arrived operators without much capital, are the chief offenders in the matter of short equipment. Without capital, without experience and without any claim on the manufacturer such as is derived from past purchases, the new operators are unable to equip their mines properly. Theirs is a nightmare of makeshifts from morn to dewy eve.

While some mines suffer but little for lack of equipment, all mines suffer severely from the lack of labor. If repairmen, water bailers, tracklayers, roadmen, timbermen and rockmen are to be kept available for every job, to be done the moment the work is called for, the roustabout labor supply around the mines must be immensely increased. It will probably pay to supply that labor if the miner will work whenever he has a chance. If he will pitch in as soon as the repairs are made, it will be an economy to accommodate him, if indeed, with our environing labor conditions, that accommodation be possible. But if an omission of the operator that will delay the miner an hour is going to send the miner home for all eight hours, it will not pay the operator or the nation to keep a repair force of this kind in comparative idleness ready to be called into action like the bellboy at the hotel when the clerk cries "Front."

Mine Often Suffers from Under-Supervision

All this argument does not grant the operator a right to deny that the mine is too often a place where under-supervision and under-provision run riot. Too often the foreman waits for complaints when the thing complained of should have had the benefit of his early investigation, knowledge and action. If the miner will work his derndest, there will be profit to the operator and advantage to the nation in providing the miner with the opportunity to put out maximum production, this opportunity being given by a more adequate repair force and a minute and provisional supervision. However, the operator is justified in saying, Where are these additional men to be secured? Mine management, like management in other business, usually retrenches first on repairs, supervision and maintenance. No greater folly can be committed. A bad accident that one man's work might have averted may lay off a hundred men and damage equipment so that the next day's run will be below normal. An hour or two of bailing or ditching, or a day of tracklaying done in time, may give every dayman 25 to 100 tons more output to handle. As the operator has learned in his long idleness, transportation for the material

produced is as important, or more important, than production itself if the tonnage sought is to be obtained.

In the anthracite region, where the hounding of the slacker has been hottest, the defense has developed new forms of recrimination. One notes how wholly different they are to those in the bituminous region. Little talk of slow turn, or flooded places, or time wasted on labor disputes, or loss of time from lack of timber—none of these stock grievances are presented. Probably the anthracite region is better equipped and more effectively supervised than the bituminous region. The anthracite region has almost no new mines and relatively few old mines reopened. It has less miners to tax and test what equipment has been provided. The slacker, therefore, has less to say as to the assistance afforded him, but nevertheless he is busy saying something.

Unsubstantiated Charges in Anthracite Region

Note that the recrimination does not come from the union, but from other less well-informed or less responsible sources. Kennamer and Farrington, in Alabama and Illinois respectively, are meeting criticism with criticism because they have a case. But in the anthracite region the union issues nothing under its name, probably because the criticisms against the operator are less generally justified. The anthracite operator has the equipment, except perhaps miners' dwellings, and he is giving his men favorable conditions for output.

Now what are the criticisms of the mineworkers? In the Shamokin district they say the operators are keeping the flat workings idle because they will not give the men the rate of wages they demand for working in the flat coal. If that action did not lay off any men the charge would be negligible, but the declaration is that there are scores of anthracite men idle in the lower anthracite fields. It is also said that the Delaware & Hudson Co. has laid off 500 men.

These broad statements of a deliberate intention to create an appearance of labor shortage could be quite easily investigated by any of the parties interested, Major-General E. H. Crowder, Dr. H. A. Garfield or William B. Wilson. Doubtless the charge would be completely disproved as soon as inquiry was set on foot by competent authority. So far no responsible organization has given the charge currency. The mine workers also make the claim that the companies want to keep all the men at home who have small families, so that in case of an accident large compensation will not have to be paid to a numerous progeny.

Miners Who Are Only Two-Thirds Citizens

But all these stories of corporational depravity of which we are now hearing on little or no authority are balanced by reports said to be made by inspectors of the Department of Labor, now making a labor survey of eastern Pennsylvania, the region in which the anthracite fields are located. The Labor Department inspectors are said to have discovered that many of the employees work only two-thirds of full time.

Supervising Inspector Walter McNichols is reported to have said that the time lost by miners is one reason why production has decreased. "Flimsy excuses are being offered for laying off," according to McNichols. "I believe that there is enough available labor in the district to get out the coal if it is properly distributed and if every man will do his share and work every day he is able to."

While men are working short time because they do not have to work full time every day or six days a week to provide for a living, the mine workers are asking for a wage scale providing higher wages. At the meeting of the Tridistrict board held July 7 and composed of officials of districts Nos. 1, 7 and 9, comprising the whole anthracite region, the board recommended that the matter of an increased wage be taken up with the coal operators and the Fuel Administration.

Almost everywhere the mines were idle for Independence Day, but on July 5 the men almost without exception returned promptly to work. The two mines of the United Coal Corporation, located at Jerome, Penn., and the mine of the same company at Naomi, Penn., worked on July 4 and produced from two-thirds to three-quarters of a full day's output. The mines of this company had on July 5 a larger turnout and output than is customary on the day following Independence Day.

Give the Front Seat to Men of Jewell Ridge

These men did so well it seems almost unkind to cap their patriotism with an even better performance. The mine workers of the Jewell Ridge Coal Corporation, of Jewell Ridge, Va., near Tazewell, worked on July 4, giving their output to the American Red Cross. The company will give its gross profits and overhead expense for that day to the same end. The owners of the mine proposed a Big Fourth of July celebration with a brass band, but the mine workers opposed the waste of time and money and declared for the operation of the mines. There is a purpose and a vision in the mine workers of Jewell Ridge. The country may well be proud that it has men who will make such sacrifices even without the excitement of a "Drive."

In the Fairmont region of West Virginia the progress of unionism still continues. W. M. Rogers, the president of the West Virginia Labor Federation, claims that 15,000 mine workers have been organized and that by Christmas there will be 27,000 in the union. In West Virginia there will then be a total membership of 44,000 out of a possible 78,000; thus roughly 56 per cent. of all workers in the coal mines of the state will be affiliated with the union. As the Pocahontas region is still nonunion, the organization in the parts of West Virginia that are unionized will then be quite dense, more so than in many states which West Virginia used to regard as in bondage to the union. But then perhaps W. M. Rogers is an optimist and has no sure basis for his prognostications.

All companies in West Virginia employing 20 men or more are required under penalties set forth in Section 6, Chap. 4, of the acts of the Special Extraordinary Session of 1917, West Virginia State Legislature, to report at the end of each week to the Secretary of the State Council of Defense the names of all those persons carried on their rolls who have not been actively engaged at some useful occupation for as many as 36 hours during the preceding week, as provided by the Vagrancy Act. The corporations thus instructed are requested to furnish the Council with the names and addresses of any other "violators of the Vagrancy Law who habitually and without reason work less than full time at their respective employments."

In St. Louis County, Missouri, Fuel Administrator Hodgson says that despite large wages drivers of coal wagons cannot be secured. Half the teams are idle, though the companies have hundreds of orders that they cannot deliver.

Mexicans Must Not Oust American Miners

Some Arizona corporations mining coal doubtless outside that state, presumably in New Mexico, were refused on July 6 the privilege of importing Mexican labor to work their coal mines. Mexicans will be admitted only for farming, railroad labor and, we are told, lignite mining. In the south of Texas is a large body of cannel, with lignite quite close nearby, and this cannel is probably included under lignite in the classification of the Department of Labor, for the basis of the order of the emigration officials is really not the character of the industry but the question whether on the entrance of Mexicans into that industry they will compete with American labor.

Putting Labor To Work Where Wanted

The War Labor Policies Board announced on July 7 that community labor boards would be established. The boards will have general jurisdiction over the recruiting and distribution of labor and will act in coöperation with the United States Employment Service of the Department of Labor.

The boards will enforce in each industrial region the policies of the United States Employment Service. Just as in the military service, the draft boards, under the

Selective Conscription Act, mobilize the army of the conscripted, so in industrial service the local boards now to be formed will mobilize the army of producers. In order that the boards may adequately represent the communities in which they operate, the employees and employers will each select representatives.

Community labor boards consisting of one representative of employers and one representative of employees with a third representative of the United States Employment Service are now being established wherever the industrial situation justifies it. While the final appointment of the membership of boards will be made by the state directors of the United States Public Service Reserve, the nomination of the representatives of industrial management will be requested from chambers of commerce and manufacturers' associations, while the state and city federations of labor will be asked to name the labor members. The third member of each board, to whom will fall the honor of presiding, will be in every case a representative of the United States Employment Service.

The community labor boards will not only assist in providing labor when there is a call for it, but will decide upon the relative needs of the different industrial establishments in the territory over which they have supervision and where the supply is less than the demand they will prorate the existing reserve.

Miners Quarrel and Quit Work

One hundred and fifty miners employed at the Tuxhorn mine, Springfield, Ill., returned to work Monday after having refused to work for several days on account of a racial clash between negroes and foreigners. The negroes predominate in the union and for five years Robert Jackson, a negro, has been the president of the local. There was an election recently and Jackson was reëlected. White members of the union complained that the election was irregular.

Later the factions almost got into a battle, and several were arrested for carrying concealed weapons. United States District Attorney Knotts took a hand. He talked to the leaders of the factions and the men agreed to return to work Monday if he would be at the mine to prevent trouble. He was there accompanied by a deputy United States marshal and work was resumed without trouble. The controversy is to be referred to the state officials of the union.

A committee of the union, in a public statement, blame the trouble on a socialist who has agitated opposition to Jackson among the foreigners. Charges which were filed by him against Jackson were dismissed by the district board of the United Mine Workers as without merit. Jackson, according to the statement, has been zealous in the interest of Liberty Bonds and the Red Cross.

Last week on pp. 24 and 25 under caption "In Illinois, Union Backs Minerettes" *Coal Age* referred to the strike at the Chicago, Wilmington & Franklin Coal Co.'s mine at Thayer, Ill. Apparently the manager of the mine, John Marland, denies the statement that the fuss originated in the refusal of the company to hire a Virden woman, the wife of a soldier, as weighmaster at the mine.

He puts the blame on a personal row between Riva and an official of the United Mine Workers of America. Whatever was the real cause, 600 men were rendered idle for two weeks. On June 28, however, they voted to return to work pending a settlement. Apparently the surface men were the persons most aggressive in declaring and maintaining a strike.

Mine Workers "Pass the Buck."

Frank Farrington, president of the Illinois District, No. 12, has written to the officers and members of the union directing their attention to the fact that by reason of a recent order issued by the United States Fuel Administration, mine operators are required to make a daily labor report to the administration, detailing the number of men employed, the number in the mine on the day of report, the potential working hours, the hours actually worked, the hours lost and the percentage of the potential time lost. There is reason to believe, he says, that although designed primarily to increase coal production, these reports will be used to help search out idlers and to assist in the enforcement of the "work or fight" rule.

"The report requested by the Fuel Administration will," he says, "create an erroneous impression and one that is apt to do great injustice and injury to the miners. And it will do it in this way: The mine owner is required only to show the aggregate amount of working time lost by the miners and is not obliged to show the reason why it was lost. Many men may be idle or have to return home after having reported for work, on account of having no coal cut or by reason of squeezes, fires, gas, water, falls, lack of timber or track, or because of disabled machinery necessary to serve their particular section of the mine, or for many other reasons over which they have no control.

"A report will be made merely stating that they have been idle all or part of a day and they will accordingly be classed as idlers or industrial slackers. Therefore, it devolves upon us to devise some measure of self protection and to that end I suggest that our men insist that their working places be kept in a workable condition, insofar as the mine management is responsible for them. Where men are prevented from working eight hours, as is required by our joint agreement, the cause of their inability to work the specified time should be immediately reported to the mine management."

Farrington declares that local rules which are in violation of the joint agreement and which restrict the output of coal must be abolished unless failure to do so can be justified in the eyes of the boys "over there" and in the eyes of those who have given them up to go "over there." Every member of the union, he says, should and must work eight hours a day and six days per week when given the opportunity to do so. So serious and solemn is the obligation, he says, that he doubts if even a stoppage of work to say farewell to conscripts leaving for military service can be justified unless only the relatives and very close friends and intimate friends of those who are leaving quit work for that purpose.

[Our correspondent at Washington informs us that the Fuel Administration is not requiring a report such as is here described —Editor.]

Department to Help Only War Industry

The Department of Labor authorizes the following announcement:

Only manufacturers engaged on war contracts and employing over 100 workers will be required to obtain their unskilled labor through the United States Employment Service of the Department of Labor by the ruling which goes into effect Aug. 1. So much uncertainty as to the scope of the new labor-recruiting policy has been shown in inquiries received by the Department of Labor from employers not engaged in war work that the Department today announced the exceptions under which private recruiting of labor may still be carried on:

"Nonwar industries must not offer superior inducements, prevent the transfer of workers urgently needed for war production, nor in any way attempt to compete with the government for labor.

"The following five classes of labor need not at the present time be recruited through the United States Employment Service, although of course the machinery of the Employment Service is available to all employers needing these classes. (1) Labor which is not directly or indirectly solicited. (2) Labor for railroads (except in so far as the Director General of Railroads has already or may in the future require that recruiting shall be exclusively through the United States Employment Service.) (3). Farm labor—to be recruited in accordance with existing arrangement with the Department of Agriculture. (4) Labor for nonwar work. (5) Labor for establishments the maximum force of which (including the additional number recruited) does not exceed one hundred employees."

EDITORIALS

Increased Postage Rates

NEW rates of postage on magazines became effective July 1. These increases are material, particularly at distances of more than 300 miles from the place of publication. The obvious step would be to raise the subscription rates in distant zones to cover the added postage.

For the present, however, the publishers of *Coal Age* have decided not to increase the subscription price, trusting that in the interests of national unity Congress will before long repeal the zone law and revert to the universal flat-rate system. Zone rates on magazines obtained in this country before the Civil War, but were abolished in 1863.

The publishers hope that they will not find it necessary to increase the cost of the paper to its readers.

Vein, Seam, Horizon, Blanket or Bed?

COMMON PARLANCE in the anthracite region describes the coal deposits as "veins." In the rest of the country this usage is regarded as grossly incorrect, and there is no question but a strict use of words would forbid us to name a deposit extending in all directions over a plane after anything as narrow and ramifying as a blood vessel, even though early in the history of coal mining coal was believed to worm its way through the rocks somewhat like a vein of gold-bearing material.

But the purists of the bituminous region do not better conditions much by using the word "seam," for the seam of one's coat is narrow also. In fact, neither "vein" nor "seam" expresses the meaning as well as "bed." It may be objected that a bed is always level, but then the coal bed was likewise level when deposited; and a folding bed does not cease to be a bed after it is upended. If, then, we would be accurate, we must term the coal deposit either a "stratum" or a "bed."

Where the coal is in a reasonably horizontal plane, the word "horizon" might be a fair substitute for the names now in use, but that expression is usually applied as including far more than a single bed, and, moreover, horizontality is usually one of the few qualities that a geological horizon is unable to preserve. For this reason the word is historically correct perhaps, but nevertheless misleading.

Furthermore, "horizon" is one of those rare locative substantives. It does not name the bed so much as express the locative quality. "Horizon" bears to "bed" the same relation that "location" bears to "lot." We talk of a pleasing location, but not of a location measuring 50 x 100 ft. So we talk of a coal horizon, but the accepted diction forbids us to say that a certain coal horizon is 3 ft. thick. "Horizon" is purely a locative word, expressing the relation between one bed and those above and below it.

One unusual word perhaps describes a coal bed better than any other. The idea of a "bed" in the mind of an ordinary person is of something about one-twentieth of a diameter thick, for the upholstery of a bed is about one-twentieth of its longest dimension. A blanket, on the other hand, is many times as long and wide as it is thick. The word accordingly helps to visualize the broad extent of a coal bed. Moreover, a blanket is readily and usually folded, thus recalling the nature of a coal stratum.

In fact, if one would convey to the man who does not understand the occurrence of coal and the true nature of that occurrence, the use of the word "blanket" will aid better than any other to make it clear. However, here again we are troubled, for our metal-mining friends will have it that a blanket deposit is one made after the strata in which it is found have long ago solidified.

If, therefore, one would avoid a controversy, the word "bed" or "stratum" had better be used exclusively, and the latter word, however accurate, also eschewed if the speaker or writer would prefer not to be thought pedantic. But after all, why be so careful in diction as to exclude "vein" and "seam"? They are based on imperfect analogies, it is true, but are not all analogies more or less incorrect and inadequate? Long use justifies a continuance of the customary word and skillfully hides the false ideas which gave currency to the ill chosen terminology.

He Who Saves Serves

WE PRINT a poster this week on the buying of "man-size bonds." The nation expects of the soldier man-size service, and of every man, woman and child man-size saving. If we ceased to buy so many trinkets and furniture, and no longer hustled around to entertainment that doubtfully entertains; if we embraced the "simple life" that Charles Wagner so eloquently advocated, it would be possible for us all to save more than we do. Large production and limited spending will put our civilian population on a war basis, and what reason is there that we should not all be conscripted for some kind of service?

No one knows how much we shall be asked to subscribe to the Fourth Liberty Loan. The poster has assumed eight billion dollars as the amount required; it may be more, it may be less. But if it is eight billion, then each earner has $200 to contribute to that fund. If we pay the subscription at the rate of $4 per week, we shall be a year meeting the liability. Why not hurry matters along by clearing up the payment in six months, so that we shall meet the next loan with a clean slate and perhaps with a few dollars of savings? A good way is to pay 10 per cent. of the undertaking every two weeks. The loan is then completely cleared in five months, and the subscriber is ready to pay a small amount down when the next loan comes along.

The past has seldom done due honor to the saver—the man who expends less than his labor produces. Not that monuments have not been erected to him. No form of patriotism has been more conspicuously monumented. But on these monuments there is usually no name. Still more seldom is a sentence of commemoration or honor written large upon them. But monuments they are, though they honor the unknown. They are memorials of the savers. They are the railroads, the bridges, the factories, the farms, the houses, the mines, the dockyards and the machinery—the implements by which are made possible easy and highly productive toil. It is the possession of these implements that has made possible big product for normal labor, and has consequently enabled the workingman to buy more for his day's work.

If we spent all we made, we would have none of these implements of economic production. They exist alone as the balance between receipts and outgo. They are the product of the abstemiousness of the human race. We hear too much about the miserly. It is true that there is at times a thrift that is not a virtue, but without thrift the world would be a wilderness. What we have and what we are is the outcome of our well-ordered thrift. Let those who brag they have never saved a cent remember that it is despite them, and not by them, that the world has reached its present stage of well-being.

Canal Route for Illinois Coal

DURING the 1917 session of the Illinois legislature, a bill was introduced outlining a plan to open up the Big Muddy River and convert it into a canal to barge coal to the Mississippi. A bill along these lines passed the Illinois senate in which an appropriation of $1,000,000 was made for the purpose noted. It undoubtedly would have passed the House, but at this point the governor of the state requested that further action be deferred on account of conditions such as exist today. In time it is expected that the bill will go before Congress.

This project includes dredging and straightening the Big Muddy River—in other words, to canalize it from Plumfield, or a little above, in Franklin County, to the Mississippi River. Locks are called for along the lower stretches of the river, and a new channel is planned from Sand Ridge to the mouth in Jackson County, some 50 miles above the junction of the Ohio and Mississippi Rivers. The United States Geological Survey has been over the Big Muddy territory, and both Federal and state engineers have pronounced the project entirely feasible.

Even if the Big Muddy project had gone through, it would have had to give way to the priority claims of a similar scheme with reference to the Illinois River, which is being deepened from its mouth to a point where the Chicago drainage canal empties into it. The southern Illinois coal field is exceedingly active, especially that portion tributary to the Big Muddy, and water transportation in this section would materially relieve the railroads. The demands for the Pittsburgh coals are so heavy at home, even if it were not for the zoning requirements, that other coals would have naturally tended to replace them. Franklin County particularly has stepped in and filled orders with coal which has done the work formerly claimed as the special field for western Pennsylvania fuel. Screenings, the great handicap to production at many Illinois plants, are especially applicable to the needs of cement and brick plants among other uses, and competitive transportation might act as an incentive to greater activity on the part of the railroads of the state, as regards the prompt handling of this grade of fuel, than has been shown in the past.

The initiative in matters similar to the Illinois and Big Muddy River projects generally originates locally, and such projects have sometimes been associated with "pork barrel" scheming during the period when the claims of the bill for recognition were being presented by congressmen at Washington. Many worthy projects have thus suffered changes due to political manipulation. A systematic plan covering the whole country has been urged many times to be handled by an Inland Waterways Commission, and the Big Muddy and similar projects might receive earlier and freer development under such guidance.

Correct Sphere of the "Country Bank"

BEFORE the war, we rarely, if ever, heard of the "wagon mine," much less of the "team-track mine"—not that these institutions were unknown. Whenever industry booms and the coal industry suffers from lack of cars, owing to the appropriation of coal cars to other uses, the wagon mine has loomed up large and made unhappy times for the railroads.

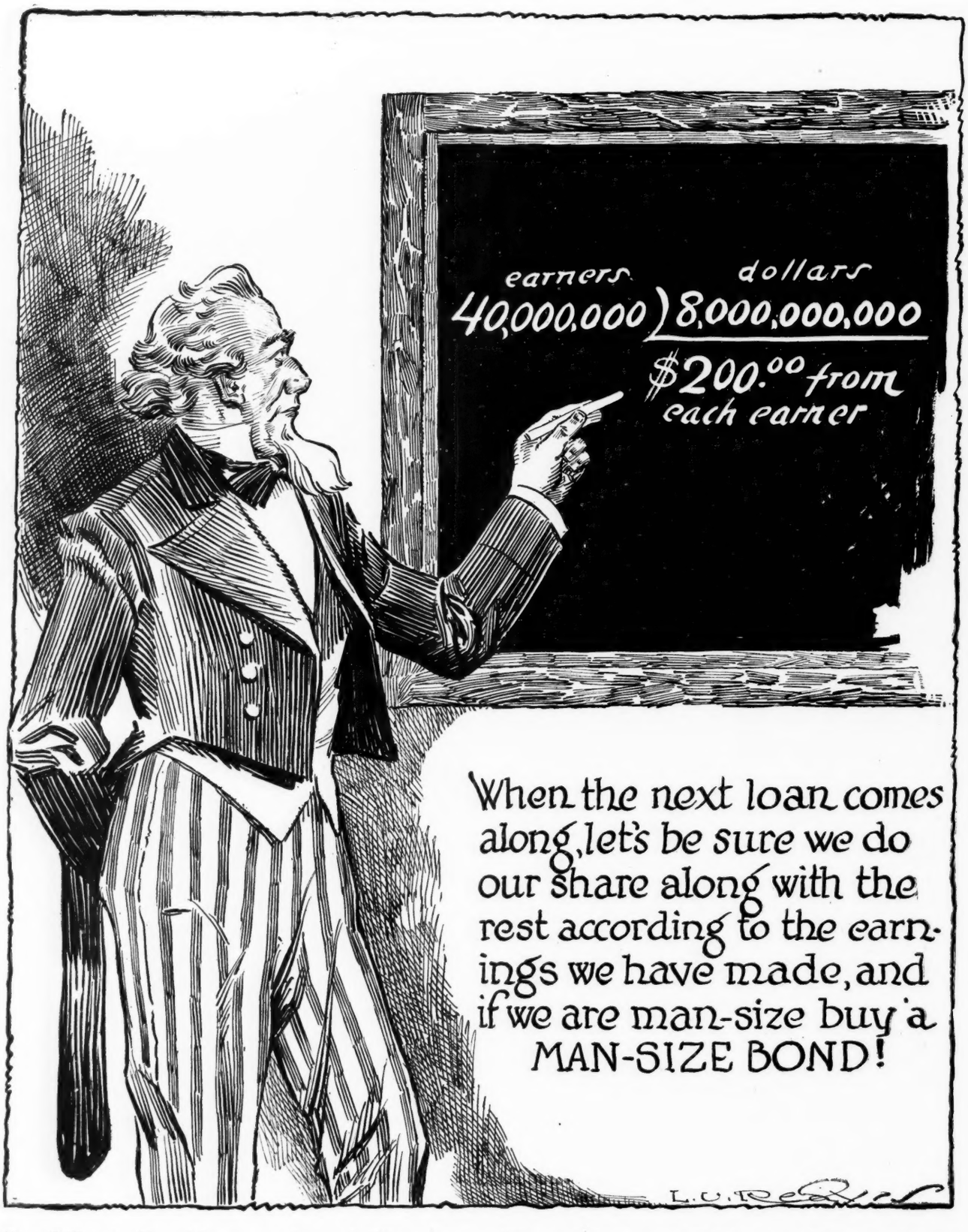
But heretofore it has been known as the "country bank." It took this, the greatest of all coal shortages, to give a new name—two new names in fact—to these mines in miniature. Country bank seemed too rustic an appellation for such a profitable and expanding venture.

The country bank, however, has had an honorable past, which it should not disguise under a new name; it has supplied coal in the winter directly to the purchaser, and so has saved railroad equipment; it has enabled the mines to meet the peak loads of the winter; it has given cheap coal to the country dwellers, and given it without the inconveniences of long storage; it has furnished winter work to the farmer and his team; it has furnished coal for the burning of lime, thus providing for the ready fertilization of the farmers' fields.

The country bank has also served as a school of apprenticeship to the regular coal business. The less fortunate farmers were digging coal and selling it long before the regular coal mine entered the territory, and even after its entrance, and these farmers later entered the regular mines. The wagon mine was also the grand prospector for new coal lands. It alone gave a broadly correct idea of the value of the coal territory, of its "wants," its dips and its coal thickness and quality.

The country bank has done, and will continue to do, a good work. With motor trucks it will probably supply coal over larger areas than ever before, and at a lower price. The burden imposed on the farmer in buying a motor truck, such as all should have for their regular agricultural work, will be lightened by the assurance that the purchaser will thereby be enabled during the winter to enter the coal trade under favorable conditions.

A Problem in Division


earners
dollars
40,000,000) 8,000,000,000
$200.00 from each earner
When the next loan comes along, let's be sure we do our share along with the rest according to the earnings we have made, and if we are man-size buy a MAN-SIZE BOND!

One Liberty Bond in every issue is like one rifle shot in every battle—better than nothing, of course, but sure not to end in victory.

The soldier uses all his cartridges and puts them where they will count. Are you doing the same with your dollars?

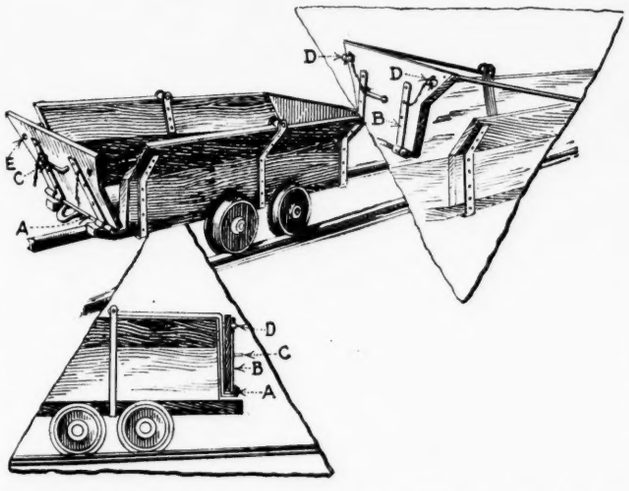
DISCUSSION BY READERS

Mine-Car Door

Letter No. 4—Kindly permit me to submit my solution to the inquiry of V. C. Robbins, *Coal Age*, June 1, p. 1031, together with a rough sketch illustrating the manner in which I think the car we are using, generally, with the self-dumping cage, can be altered so as to permit of its being loaded conveniently in a thin seam of coal, by dropping the end-gate, as suggested by Mr. Robbins.

The sketch shows the end-gate of this car mounted on long hinges made of bar iron and bent at right angles so as to permit the long arm of the hinge to extend over the top of the car, at each side, the hinge being pivoted at the center of the car and the shorter arm being bolted firmly to the end-gate. This arrangement permits the door to be raised automatically by the door-lifter, at the top of the shaft, coming in contact with the iron lug *C*, which is shown bolted to the end-gate at its center.

My suggestion is, that, in order to enable the end-gate or door to be dropped to the floor and permit coal



MINE CAR FOR THIN COAL AND SELF-DUMPING CAGE

to be loaded into the car, in a thin coal seam, the door should be mounted on hinges *B* turning on an iron rod *A* supported by the two bent hinges previously mentioned. Instead of the door being bolted to the two bent hinges, as has been described, it is now made to swing freely on the iron rod supported by them. When the car has been nearly loaded, the door is raised and made fast to the bent hinges by means of a strong bolt *D* fastened to each hinge. Each bolt passes through a hole *E*, in the door, and cotter-pins hold the door in position, as shown in detail in the figure.

I believe this arrangement will allow the car to be loaded in the manner described by Mr. Robbins, and that when loaded and hoisted in the shaft on a self-dumping cage, the door will be lifted automatically in the same way, as when it is bolted firmly to the bent hinges, as in the car now in use in this state.

Scammon, Kan. ROBERT LAWS.

Care of Coal Cutters

Letter No. 1—I was pleased, in reading the article on the "Care and Management of Coal Cutters," *Coal Age*, June 15, p. 1108, to note the many good points brought out and which are worthy of the careful attention of all operators and machine runners.

It seems to be the idea of the average machineman, at least here in Illinois, that all that he is required to do is to cut the coal. He does not consider that he is the least responsible for the care and proper use of the machine he is running. If a breakdown occurs, he at once calls on the repair man to remedy the trouble, while he idly awaits his coming. In most cases, the breakdown is due to the man's abuse of his machine. He either does not know or does not care to use ordinary precautions to prevent the mishap.

Some time ago I worked in a mine in the southern part of this state where only Sullivan short-wall machines were used. At that time, I was loading coal and working extra on machines. It was almost impossible to get eight hours' work out of any machine in the mine, owing to the mistreatment the machines received. The company had changed machine bosses so often that the machine runners did about as they pleased, until a boss was found who had worked formerly for the Sullivan Machine Co., in the capacity of demonstrator.

COMMON ABUSE OF COAL-CUTTING MACHINES

As an example of the abuse of the machines, let me cite a single instance where a machine runner, going from one place to another, ran past the switch. Seeing his mistake he promptly shut off the current, threw the reverse lever over, and again turned on the current while the armature was running at a high rate of speed. This was a common practice of machine runners, who were in the habit of "plugging" their machines in this manner.

On taking charge, the first step of the new man was to lay down a set of rules and give notice that a severe penalty would be imposed on anyone violating the rules. This put an end to most of the switch trouble. The new man kept a separate expense account for each runner he employed. If the account ran too high he moved the man to another job and put another man in his place. It was not long before a great change was observed and the management could depend on getting a full day's work out of each machine, barring unavoidable accidents.

In addition to his supervision of the men, the new boss studied carefully the nature of the coal and experimented to find the kind of bit that would do the best

work. He found that the old pick-points were not adapted to the work, as they cored badly. In their place he adopted a chisel bit and got better results.

The man used his head and educated his runners to do the same, and it was not long before there was a vast improvement in the machinework in that mine. Some men he found whom he could educate, while others he was obliged to change, with the result that he soon had as competent a set of men as could be found in any mine in the state.

For a considerable period the electric current at this mine was particularly poor. The new man investigated this matter also and made alterations in the wiring and bonding of rails. The result was such an improvement that it was found unnecessary to get another generator, as the company had contemplated. On my last visit to this mine, I was told that if one generator gave out at any time, it was possible to continue work with the smaller generator, until the larger machine could be repaired. Under the old state of affairs, this would have been impossible.

All of these improvements the man has accomplished in about twenty months. In that time, he has saved the company a year's salary, in the repair of machinery, by picking out of the scrap heap parts that could be used again after being worked over. My belief is that if all machine bosses were first-class, competent men and would lay down rules to guide the men in their charge, the result would be a great surprise to the company who employed them and the cutting down of the expense of operating.

Like the man I have mentioned, a machineboss should have had previous experience and understand thoroughly the difficulties to be encountered in cutting coal and the abuses that the machine runners are prone to inflict on their machines. MACHINE RUNNER.

Nashville, Ill.

Selecting Mine Foremen

Letter No. 1—I have been an interested reader of H. E. Gray's letter, *Coal Age*, June 1, p. 1030, and was particularly impressed with his description of the kind of man some operators would select to take charge of their work.

The reference made to the choice of "a young man who has the pep, push, vigor and vim to make things go," and the suggestion that if things go wrong the only thing to be done then is to get a new man, caused me to wonder who the next man would be for the job, and whether the choice would fall on the same type of young man who has the required push and who can, no doubt, make things go; or whether the lesson taught by the failure of such a one would cause the management to look for an older man who has the necessary experience and qualifications to insure success.

There is no question but that older men holding positions as mine foremen frequently fear that young men working under them will climb into their place. With this fear in their hearts, they watch every opportunity to discourage their efforts and work. This is liable to occur when the man in charge has neither the judgment nor qualifications that fit him for the position he holds. Recognizing the ability and ambition of the younger man, the temptation is strong to put every impediment in his way. I do not mean to say that this is the disposition of mine foremen in general, and am glad to state that it is the exception rather than the rule.

Because a man is older is no proof that he is better qualified to fill a responsible position than a younger man, but the test is in the qualifications which each may possess. An instance that came under my observation and which illustrates this point is that of a mine foreman who was employed by a large company. This man was 45 years of age and had plenty of pep, push, vigor and vim. He certainly made things go, but I am sorry to say they did not go right, and the company were obliged to seek another man for the place. The one then chosen was a young man, but he had the qualifications that insured his success, and from that time things moved smoothly at the mine.

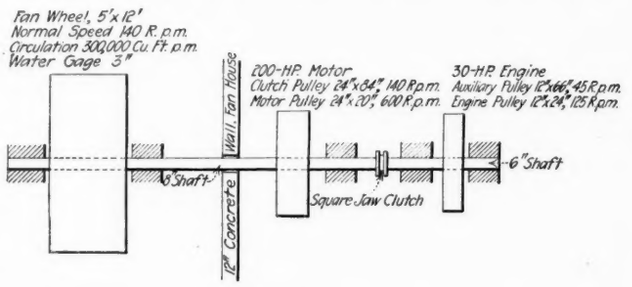
In closing, let me say that favoritism should be set aside entirely in the choice of men for responsible positions. The choice should depend on qualifications and fitness for the position, whether the man be young or old. Only in this way can results be obtained. The frequent change of mine foremen mentioned by Mr. Gray, is, in my opinion, a great mistake. Change should only be made when things are going wrong and it is unquestionably the man's lack of qualifications, in this case, that is to blame.

Sugarloaf, Penn. JOSEPH LAWRENCE.

Auxiliary Power To Drive Fan

Letter No. 1—Referring to the inquiry, *Coal Age*, June 22, p. 1173, relating to the installation of an auxiliary engine to be used to drive the mine fan, in case of emergency, permit me to give my own experience in respect to the same problem encountered in the development of a large mine.

After a thorough investigation of gasoline engines and the storage-battery problem, I concluded to use a



SHOWING DETAILS OF SHAFTING FOR MOTOR AND ENGINE DRIVE

steam engine as an auxiliary drive, by installing, at the wash house, a boiler of sufficient capacity to drive the fan.

In the case presented in this inquiry where a 75-hp. motor is used to drive the fan under full load, an engine developing 10 or 15 hp. would, in my opinion, be sufficient to create the necessary ventilation to keep the air current moving, assuming that when the power is cut off the mine ceases to operate, and the only object of maintaining the ventilation is for the safety of the mine.

The installation to which I refer here is illustrated in the accompanying figure, which shows a clutch pulley

driven by a 200-hp. motor. The engine drive is disconnected by a positive square-jaw clutch. In the ordinary method of operation, the clutch pulley is thrown in and the short shaft, which carries the engine-drive pulley stands still under a tight belt. The moment the electric power is thrown off, or fails, the clutch on the clutch pulley is disengaged, the jaw clutch thrown in, and the engine started.

In this particular instance, a boiler of 150-hp. capacity is installed in the wash house and banked with 75 or 80 lb. of steam, which is more than sufficient to operate the engine, and drive the fan at a speed of 45 r.p.m., which will produce about 70,000 cu.ft. of air per minute, the normal speed of the fan being 140 r.p.m. If only low-pressure steam is available, the size of the engine has to be correspondingly increased; but it is considered far more reliable to depend on a steam engine than to rely on an internal-combustion engine, especially since the engines now-a-days are built for lower-grade fuel and require from 3 to 5 min., under the most favorable circumstances, for starting.

CARL SCHOLZ,
Chicago, Ill. General Manager, Valier Coal Co.

Straightening Brittle Mine Rails

Letter No. 2—Relative to the inquiry of "Doubtful," *Coal Age*, June 29, p. 1213, I, too, have been eagerly scanning subsequent pages in the hope of learning the truth of the former correspondent's contention that brittle rails can be straightened without being annealed by heat or taken out of the mine. Perhaps our friend has discovered that he has something valuable up his sleeve, and is now unwilling to give out the information.

It occurs to me that it may be possible, through the application of electricity, to anneal the iron in some manner, since the electric return acts upon the rails to make them brittle. I have had some experience straightening brittle rails or rails that have been subject for some time to the action of the electrical return; and I am satisfied that the difficulty of straightening these rails is often greatly magnified through prejudice.

In straightening several tons of bent rails, weighing from 16 to 35 lb. per yd., which had been subject to long continuous use on main haulage roads and for gathering cars at the face, I have lost very little through breakage of the rails. When having occasion to straightening rails of this character I have been told, in quite a contemptuous manner, that "nine out of every ten will break," while the result showed that the reverse was nearer the truth, and perhaps one in ten would be broken.

Of course, 30 and 35-lb. iron breaks more easily than lighter rails. It would be even more difficult to straighten rails above 35 pounds in weight; but I believe that, in the average mine, there is not the same occasion to straighten the heavier rails, because they have been subject to such severe usage on heavy hauls and are so badly worn that they are seldom fit for further use.

On the other hand, it does seem quite a difficult feat to bend straight rails that have been rendered brittle through electrical action; as, for instance, where it is desired to lay a switch off an electric-locomotive haulage. But, even then, I have had little trouble from breakage in bending such rails. One should, however, be very careful in straightening rails that undue strain may not be applied at certain points in the curve. Take the precaution to move the bender after every three or four turns, so as to insure a more uniform stress throughout the length of the rail and give time for adjustment.

Thomas, W. Va. TRACKMAN

Interpreting Mining Laws

Letter No. 6—It is not surprising that we still hear the question asked, "What is the meaning of the word 'miner,' as used in the Anthracite Mine Law of Pennsylvania, in reference to the nature of a man's employment in the mine, before he can receive a miner's certificate." Ii is well known that, for a long time, there has been much dissatisfaction in respect to the requirements of what is termed the "Miner's Certificate Law," and complaints are frequent.

Section 1 of the Act of July 15, 1897 reads as follows:

Sec. 1. Be it enacted, &c., That hereafter no person whosoever shall be employed or engaged in the anthracite coal region of this Commonwealth, as a miner in any anthracite coal mine, without having obtained a certificate of competency and qualification so to do from the "Miners' Examining Board" of the proper district, and having been duly registered as herein provided.

The qualifications of applicants for miners' certificates are stated in Sec. 5 of the same Act which reads, in part, as follows:

All persons applying for a certificate of competency, or to entitle them to be employed as miners, must produce satisfactory evidence of having had not less than two years' practical experience as a miner, or as a mine laborer in the mines of this Commonwealth, and in no case shall an applicant be deemed competent unless he appear in person before the said board and answer intelligently and correctly at least twelve questions, in the English language, pertaining to the requirements of a practical miner, and be properly identified under oath, as a mine laborer, by at least one practical miner holding a miner's certificate.

The requirement that a man must work in the mines of Pennsylvania, as a mine laborer before he can apply for and receive a certificate authorizing him to mine coal, or work as a miner has not only imposed a grievous hardship upon many competent miners but has been detrimental to the mining service in the state. It has prevented many skilled workmen from foreign countries from entering the mines, as they often object strongly to spending two years laboring for men who are probably not as well qualified to do the work as they are themselves. Many of these men are perfectly competent to do the work as they have had a great deal of experience in coal mines in foreign countries.

Referring to the opinion of the state's attorney general that any one employed in underground work in the anthracite region is a miner, it may be stated that the definition of the word "miner," as given by the attorney general will hardly agree with that given in the Act of June 1, 1915, which reads:

The term "miner" means the person who cuts or blasts coal or rock at the face of a gangway, airway, breast, pillar or other working place; also any person engaged at general work in the mine and qualified to do the work of a miner.

A man could hardly be "qualified to do the work of a miner" without having served his time as a miner's

laborer at the working face; and, by the previous act which is still in force, he must do so in the mines of Pennsylvania. FRANK HALL, Deputy Chief,
Harrisburg, Penn. Department of Mines.

The Mining Situation

Letter No. 2—At the present time, it would seem as if the Nation was at its wits' end, so to speak, to know what methods to adopt or how to proceed to increase the production of coal and secure a maximum output from every mine, which is necessary for the successful prosecution of the war. There is no doubt that coal operators, one and all, will welcome any suggestion that will help them increase their output, provided that the things suggested are practical.

One point appeals to me as being important enough to be borne in mind. Many coal mines are largely dependent upon coal-cutting machines and other necessary mechanical equipment. Should the Government find it necessary to commandeer the steel production, it would seriously embarrass the operation in many mines, as operators would then be unable to secure the prompt delivery, if at all, of such equipment as they require.

NEED OF LABOR-CONSCRIPTION

In this emergency, more dependence will have to be placed on increasing the man power in coal mining. It is true that we have many able-bodied and experienced coal miners who might justly be called slackers, for the reason that they work but half the time and lie idle the remainder. This may be attributed to love of pleasure, laziness or booze; but whatever the cause, the effect is the same as far as the production of coal in the mines is concerned.

I want to suggest that the time has come to adopt a law that will compel this class of slackers to continue at their work. Compare such a condition with that which exists in Germany, where every man is compelled to do his part and there is no opportunity to shirk. Here is a virtue that it would be well to emulate, though one of a common enemy.

It would appear that the only way to round up the class of slackers to whom I have referred would be by the enactment of a law as drastic as that of the selective-draft law. There is no reason why a labor-conscription law should not prove as great a boon to the coal industry as the selective-draft law has been to our army of fighters. Where individuals, whose labor is necessary for the welfare of the country, do not realize the seriousness of the present mining situation, they should be brought to feel their responsibility in the great cause by drastic action of the Government. Every man should feel it is his duty to work every day when that is possible.

OTHER CAUSES OF REDUCED COAL PRODUCTION

One source that lessens the production of coal is the celebration, by foreigners, of the large number of national holidays they have been trained to keep in their own country. But no man can serve this country loyally and continue to lay idle, on such account, at this time. No church, lodge or society can consistently and with loyalty insist on its members observing their customary holidays, as before the war.

Another unquestioned source of trouble is the booze habit that prevails too largely among the mining classes. Where this habit exists it should be controlled so as not to interfere with the regular operation of the mines. When local restrictions are found insufficient, Congress should enact a law that will eliminate this evil till after the war, and any violation should be treated as severely as an offense against the operation of the draft law.

Aside from all else, one cannot but realize that it is unjust to the boys we are sending "over there" to spill their blood in the cause of freedom, while workers at home are permitted to idle away their time in the pursuit of pleasure or appetite. The boys have a right to expect every ounce of physical energy to be exerted at home in the cause for which they are fighting. This, and this alone, will shorten the war. LOYALTY.
Thomas, W. Va.

Letter No. 3—The letter of Thomas Hogarth, *Coal Age*, June 29, page 1208, regarding the present mining situation in the country, strikes a deep chord. I can bear testimony to what he says in regard to the time lost by miners visiting from town to town and place to place.

The foreign element is largely in the majority in our mining camps, and it is no exaggeration to say that they are making more money today for their labor than they did before the war began. But, as Mr. Hogarth remarked, they are spending it on themselves—for drinks and pleasure—instead of investing it in War-Savings Stamps and Liberty Loans that would help the Government. I certainly do not begrudge these men or any one for seeking their own pleasure after they have met the demands laid on them by the war.

Time and again I have looked out on the long line of cars waiting to be loaded only to feel downhearted and disgusted when observing the small number of men whose names appear on the time sheet as working. It is true, as Mr. Hogarth has intimated, that automobiling has interfered greatly with the work of the miner, by enabling him to take extensive trips into the country to see his friends or attend a festival or other celebration. The question may be asked, What is the cure for this condition?

GOVERNMENT OFFICER TO ROUND UP TRUANTS

The plan Mr. Hogarth suggests of appointing a Government inspector who would act as a truant officer seems feasible if the fine imposed on idlers were used for Red-Cross work, after paying for the services of the inspector, which would be a reasonable expense. However, this is not a time to apply harsh and severe measures without restraint. If I may be allowed the expression, it is a time to employ the iron hand and velvet glove.

It is only fair to say that the majority of our slackers, in the coal mines, do not realize the great sacrifices their brothers are making. Could they see the devastation in their homelands, where whole families have been wiped out and nothing remains of the old homesteads but ruins and shellholes, every day would find them at work.

I sometimes think if more pamphlets could be printed in the different languages of the mine workers, describing the devastation of their homelands, it would have a wholesome effect on them and take away their desire for idling away their time and seeking their own pleasure.

One more suggestion and I will close. We are working an eight-hour shift, but many of our miners spend but five or six hours in the mine. This means a great reduction in daily tonnage and is a situation hard to remedy. There has been some talk of working a nine-hour shift, but how would this effect anything when men fail to work the eight hours that mark the present working day?

My suggestion is to cut the shift to six hours and work two six-hour shifts in every 24 hours of the day. If this could be done, it would give us a 12-hour working day during the period of the war. The plan might entail a little extra cost in the supervision of the mines, but I should like to see the plan discussed and learn the opinion of *Coal Age* readers with reference to its feasibility.

R. W. LIGHTBURN.

Perryopolis, Penn.

Sealing Off Fire on Intake

Letter No. 2—The sealing off of a fire that has gained some headway on the intake air is a matter of considerable importance. The work should be promptly and thoroughly done.

In the case set forth by "Ancora," *Coal Age*, June 22, p. 1173, it does not appear to me that there is any great danger of explosion, since it is stated that the size of the heading is 6 x 10 ft. and an air current of 30,000 cu.ft. per min. is passing, while the quantity of gas generated is so small that it has not been necessary to use safety lamps, heretofore, in driving these headings.

The fire is said to be located in the timbers 30 or 40 yd. back from the face, and I will assume that the distance, from the last open crosscut to the face of the heading, is 50 ft. This will give an air space in each heading of $6 \times 10 \times 50 = 3000$ cubic feet.

Immediately upon being notified of the discovery of the fire, I would order hauled into the mine eight pieces of 8 x 8-in. square timber of suitable length; also, a sufficient amount of 1½- to 2-in. lumber and 40d. nails, and plenty of good clay for filling in the space between the board stoppings to be built in each heading.

Having proceeded at once to the place, I would tear away an opening in the stopping outside of the fire so as to short-circuit a portion of the air current, and reduce the amount of air passing over the fire.

As quickly as the material arrived, I would set four of the heavy timbers in each heading as close to the seat of the fire as the heat would permit and where there would be no danger of the timber being ignited by the heat. I would employ two crews so as to build a stopping on the two entries at the same time.

In answer to the two questions asked in regard to the condition of the air, let me say that if the intake stopping were built first it would have the effect of allowing much smoke to stand on the return airway; whereas if the return stopping were built first the air on the intake would be practically clear of smoke. In order to protect the men who are building the stopping, I would hang curtains just inby of each stopping, so as to cut off the heat from the fire. I shall be glad to learn the views of others on this matter.

Worley, Ky. OSCAR JONES.

Shortage of Mine Labor

Letter No. 3—Referring to the question of shortage of labor in the coal mines today, permit me to suggest one thing that appeals to me as an important consideration and deserving of more attention than it has yet received at the hands of coal-mining officials. Mention was made of this in an excellent article that appeared in *Coal Age*, June 8, p. 1058, entitled "War as a Supreme Test of Efficiency," by Edward N. Hurley. Attention is drawn to the great need of efficiency, as shown through the cost accounting in coal mining and other individual industries.

Today, the question of industrial efficiency should be uppermost in the minds of every class of men and to none does this apply with greater force than to officials in charge of coal-mining operations. There are efficiency experts in almost every other industry, and why should they not be employed in the operation of coal mines. No industry affords a greater field for activity, in this respect, than the mining, preparation and marketing of coal.

UNWARRANTED WASTE IN COAL MINES

Attention has been drawn many times, in *Coal Age*, to the great waste of material in the operation of mines. Those acquainted with underground conditions know well that there is often sufficient steel rails, timber and other necessary material to meet all requirements for some time to come when orders for such material are sent to the purchasing department.

The man whose duty it is to purchase the supplies makes no investigation to ascertain, were it possible, whether there is absolute need of the thing ordered. No checking system is employed to show how much material has been used since the last order was filled and how much should now be on hand. The mine management seldom realizes the wealth of material that is left to be covered up and lost in abandoned places.

Again, there may be plenty of locomotives already in the mine, for hauling the daily output to the shaft or slope bottom, but, owing to a lack of efficient distribution or the adoption of a proper system of haulage, the present equipment is inadequate. As a result, a requisition is sent to the office, calling for further outlay. The management finds, later, that the cost of supplies is high, and believing that it is the result of the increased cost of material, fails to realize what is the true cause of the losses shown by the profit-and-loss account. While making every effort to increase the capacity of the mine, mine officials seemingly forget, or at least fail to employ means that will secure the highest economy.

I have mentioned only one or two things that a good efficiency man would remedy if given supervision of the practical working of the mine and a record of supplies of material and labor. This is an important matter, especially at the present time when the Government is demanding an increased output of coal and greater economy in the use of material, in every industry. Efforts to increase the efficiency of coal operations will go far to offset the present shortage of labor in the mine.

Lochgelly, W. Va. ROBERT J. WOOD.

INQUIRIES OF GENERAL INTEREST

Blue Gem Coal in Tennessee

I want to ask if *Coal Age*, or any of its readers, can inform me if the thin seam of coal known as the "Blue Gem Seam" is being worked in Scott County, Tenn. We are working, in our mine, a thin vein of coal that averages 24 in. in thickness and is of good quality. The operation is known as the "Oneida Consolidation Coal Co." and the name of the mine is "Morning Glory." What I would like to know is if this seam is the true "Blue Gem" coal. INQUIRER.

Oneida, Tenn.

Probably some of the readers of *Coal Age* can give the information desired by this correspondent.

Handling Electric Detonators

On several occasions, I have heard of peculiar accidents that have occurred through the handling of electric detonators. These accidents may have resulted through carelessness or the neglect to take ordinary precautions. Inasmuch, however, as we are using these detonators every day in our mines and many of the men are none too careful, I want to ask if it is possible to explode a detonator otherwise than by the electric current.

In one instance that was reported to me some time since, the detonator was said to be exploded by pulling, twisting or scraping the lead wires, and I have wondered if that is possible. Other instances have been reported of the accidental explosion of detonators where I am led to believe that the explosion was due to the wires, in some way, coming in contact with a charged wire or an electrical conductor. STUDENT.

Peru, Ill.

This question was submitted to different manufacturers of electric detonators and electric fuses, with the result that it can be stated with certainty that when electric detonators are properly handled and not permitted to come in contact with live wires or to receive a static charge of electricity, there is practically no danger of an accidental explosion occurring.

A number of peculiar accidents have been reported, from time to time; but, in practically every case, the explosion was due to an electric discharge. It is stated that the construction of the detonating cap is such that any amount of twisting or scraping of the wires entering the cap could not cause the explosion of the fulminate, which is separated from the ends of the wires by fully an eighth of an inch.

In the manufacture of electric detonators, the safest practice has been to embed the ends of the wires or the platinum bridge in prepared guncotton, which is not sentitive to friction, but which is readily ignited by the incandescence of the platinum bridge of a low-tension detonator, or the electric spark of a high-tension detonator. The ignition of the guncotton causes the explosion of the fulminate in the cap.

In one instance reported, a man was dusting a bunch of electric detonators with a feather duster. As he held the bunch of exploders by the wires, in one hand, and applied the duster with the other, one of the caps exploded. In explanation of this occurrence, it was thought that the contact of the feather duster with the bunch of wires produced sufficient frictional electricity to fire one of the caps. This, of course, could happen only in a very dry atmosphere and where other conditions were likewise favorable.

In mining practice, it is well known that electric fuses and detonators are often handled in a very careless manner, and it may frequently happen that the lead wires are unconsciously brought in contact with a conductor that is sufficiently charged to cause the explosion of the cap. It requires a very slight current to explode an electric detonator, about $\frac{1}{2}$ volt and from 0.3 to 0.4 ampere being sufficient.

Few persons realize how readily a static charge can be produced in the human body. On a dry, cold day, a man with full physical development, by walking briskly over a Brussels carpet, can develop sufficient static electricity to ignite a gas jet by touching his finger to the metal tip of the burner.

While it is doubtful whether a sufficient static charge could be produced in a person, in a mine where the atmosphere is more or less damp, it is very possible that an electric exploder could be fired in this manner when all conditions are favorable. The question is an interesting one, and we hope to learn the opinions and experiences of others in this regard.

In reply to the question of whether an electric detonator can be exploded in any other way than by electricity, the answer is, Yes. All practical miners and many who are less practical and who have learned by sad experience, know that a detonating cap can be exploded by percussion. Men have lost their fingers through the explosion of a cap, the contents of which they were attempting to ascertain.

On the other hand, strange to say, an instance is recorded of a heavy box of dynamite falling on a detonating cap, which was crushed by the force of the blow, the shell being broken so that the fulminate was exposed and yet the cap did not explode. It needs no argument, however, to convince one that such an instance as this is quite the exception and forms no guide to the safe handling of such material.

Other facts, equally strange and inexplicable are detonating caps that have been mashed flat to a thickness not exceeding $\frac{1}{32}$ in. without explosion taking place. While these facts cannot be disputed they do not warrant a miner taking any chances in the handling of detonators. There is only one safe rule to follow and that is to avoid the unnecessary handling of exploders and keep them in a safe place out of harm's way.

EXAMINATION QUESTIONS

Miscellaneous Questions

(Auswered by Request)

Ques.—Suppose, in a main airway 8 x 10 ft., in section, the velocity of the air current is 1200 ft. per min. This volume is divided equally into two splits, whose respective areas are 6 x 8 ft. and 6 x 10 ft. What is the velocity in each split?

Ans.—The sectional area of the main airway is $8 \times 10 = 80$ sq.ft., and the volume of air in circulation is, therefore, $80 \times 1200 = 96{,}000$ cu.ft. per min. This volume being divided equally between the two splits, there is 48,000 cu.ft. of air passing in each split. The sectional area of the first split is $6 \times 8 = 48$ sq.ft., and the velocity in that split is, therefore, $48{,}000 \div 48 = 1000$ ft. per min. The sectional area of the second split is $6 \times 10 = 60$ sq.ft., and the velocity of the current is, therefore, $48{,}000 \div 60 = 800$ ft. per min.

Ques.—A mine car is 9 ft. long, 4½ ft. wide and 2 ft. high; how much coal will it hold, the dimensions to be inside?

Ans.—The cubic contents of this car is $9 \times 4\frac{1}{2} \times 2 = 81$ cu.ft. It is customary to estimate 40 cu.ft. of mine-run bituminous coal per short ton of 2000 lb. On this basis the car will hold $81 \div 40 =$ say 2 short tons when loaded without "topping."

Ques.—A mine is drained by natural means and the ditch carrying off the water is 12 in. wide and 12 in. deep. The drain is full of water, which has a velocity of 2 ft. per sec.; how many gallons of water are passing per minute?

Ans.—When the ditch is full of water, its wetted sectional area is $12 \times 12 = 144$ sq.in. A velocity of 2 ft. per sec. is $2 \times 60 = 120$ ft. per min. The quantity of water flowing in the ditch, under these conditions, is $(140 \times 120 \times 12) \div 231 =$ say 900 gal. per min.

Ques.—Where would you apply the water gage, and does it increase or decrease as the workings extend, all other conditions being the same?

Ans.—A water gage is used, in mine ventilation, for the purpose of computing the power on the air. It should therefore be placed on the fan drift in order that it shall take into account the entire resistance of the shaft and mine, which the ventilating fan must overcome. In this position of the water gage, its reading indicates the pressure established by the fan, which is above or below the atmospheric pressure, according as the fan is blowing air into or exhausting air from the mine.

It is the mine resistance that *causes* the pressure, which the fan *creates*. If the connection with the mine was broken, and the fan was operating in the open air, it would be able to create little or no pressure because of a lack of resistance, which must always cause the pressure. For this reason, as the mine workings are extended, the mine resistance is increased and the reading of the water gage correspondingly increased, other conditions remaining the same.

Ques.—In opening up a new mine, what would be the essential points to consider in making the opening and laying out the mine workings?

Ans.—It is important to locate the mine opening with due regard to both surface and underground conditions. As nearly as practicable, the opening should be located in the center of the property if this will afford a suitable building site, easy shipping facilities and favorable haulage and drainage in the mine. Regard must be had as to whether the mine should be opened by a shaft, slope or drift, in order to secure the most favorable conditions in its future operation, in respect to economy and safety.

Where the seam is inclined, it may be advisable to sink a shaft on the dip side of the property, in order that both coal and water shall gravitate toward the shaft. But, if the seam outcrops at a point offering good facilities for shipping it may be of advantage to open the mine with a slope and work out the coal in successive lifts, by rooms driven to the rise of the gangways or crossheadings. All of these considerations must be carefully studied in the location of a mine opening.

In laying out the workings underground, the direction of the main entries or haulage roads should be such as to give a suitable grade in favor of the loaded cars and afford good drainage. In like manner the direction of the rooms must be such as to permit of the safe and easy handling of the cars from the working face to the gangway or level.

Ques.—How many tons of coal in a room 200 ft. deep, 40 ft. wide and having an average height of 4 ft.?

Ans.—The cubic contents of this room is $200 \times 40 \times 4 = 32{,}000$ cu.ft. Taking the average weight of bituminous coal as 80 lb. per cu.ft., the weight of coal in the solid in this room is $32{,}000 \times 80 \div 2000 = 1280$ short tons.

Ques.—If a pressure of 2 lb. per sq.ft. produces a velocity of 200 ft. per min. what pressure would be required to produce a velocity of 400 ft. per min.?

Ans.—In mine ventilation, the unit of ventilating pressure varies as the square of the velocity of the air in circulation. To increase the velocity from 200 to 400 ft. per min., or to double the velocity in the airway will require, in this case, $4 \times 2 = 8$ lb. per sq.ft.

Ques.—Which gas is most dangerous to life, blackdamp (CO_2) or whitedamp (CO)? State why.

Ans.—Carbon monoxide (CO), commonly known, in the mine, as "whitedamp," is the more dangerous gas. It is extremely poisonous and gives no warning of its presence by the lamp flame; while carbon dioxide (CO_2) is not generally considered a poisonous gas and its presence, in the mine, is at once made known by the dimness or complete extinction of the miner's light. This gas is sometimes called "blackdamp" by the miners.

COAL AND COKE NEWS

What Happened in June

[The figures in brackets in the text refer to pages in the preceding volume when the figures exceed 100, and to pages in the present volume when the figures are less than 100. Reference to the items thus indexed will afford further information. "What Happened in May" appeared June 15 on page 1130.]

June 1—No. 5 mine of the Lehigh & Wilkes-Barre Coal Co. near Hazelton has button strike [1071, 1119]—Regulation enforcing the production of clean coal comes into effect [1068].

June 3—"Coal Week" (lasting till June 8) commences. All purchasers of coal are requested to place orders for all coal needed prior to Apr. 1, 1919 [973, 987]—Mt. Jessup colliery closed down by Fuel Administrator for shipment of dirty coal [1083].

June 4—Meeting of mine workers' delegates in the Huntingdon and Broad Top region vote in favor of returning to work pending arbitration [1071].

June 5—Operators' association formed in the new Elkhorn fields, Letcher County, Kentucky, at a meeting held at Whitesburg—Fuel Administrator issues estimates of bituminous coal likely to be needed from Apr. 1, 1918, to Apr. 1, 1919, at 634,594,000 short tons, or 79,866,000 tons more than produced in 1917. This will be an increase of 14.4 per cent. over last year's production [1116].

June 7—Production Bureau of United States Fuel Administration is inaugurated, with James B. Neale, anthracite advisor to the Fuel Administrator, as director [1162].

June 10—New freight rates under order of May 25 come into effect—United States Fuel Administrator states that the automobile factories will only be allowed 25 per cent. of the fuel necessary to maintain their former production [1162]—Strike at Bertha mine of Quality Cement Coal Co., in northern end of Fairmont region. Strike ends June 11 [1163].

June 11—Convicts mutiny at Banner mine, Pratt Consolidated Coal Co. Mutiny ends, June 13 [1164].

June 12—United States Fuel Administrator states that the curtailment of the fuel supplied to automobile factories will consider only the manufacture of pleasure cars and not the production of trucks for war purposes nor the output of other war necessities—German Government lodges complaint against lynching of the miner, R. P. Prager—Director of Railroads amends order of May 25 by which intrastate rates are placed at the same level as interstate rates, at the level to which they were increased in that same order. Intrastate rates are to be raised only 25 per cent. Minimum rate of $15 is made to apply only to line-haul shipments, and not to coal, coke or certain other bulky shipments. Prepayment of freight not required till Aug. 1 [1162]—Strike at Coal Brook colliery of the Hudson Coal Co., Carbondale, Penn. Strike ended June 20 [1164, 1202].

June 13—United States Fuel Administration gives the following list of precedences in coal distribution, all classes being preceded by the domestic user: (1) Railroad, (2) Army, Navy and Government departments, (3) state and county institutions, (4) public utilities, (5) retail dealers, (6) manufacturing plants approved by the War Industries Board for preferential coal, (7) less important industries [1161].

June 14—Fuel Administration of New Jersey removes 56 tons of coal from summer home of John F. Dryden, president of the Prudential Insurance Co. This is the first excessive stock of domestic coal reduced by Government action.

June 16—Announcement made by Secretary McAdoo that the next offering of Government bonds would be in October and for six billion of dollars.

June 17—"Clean-coal" Conference at Kansas City attended by operators, labor leaders and coal inspectors of Oklahoma, Kansas, Missouri and Iowa (23)—Cave-in kills three men at Short Mountain colliery, a Susquehanna Collieries Co. operation near Lykens, Penn. [23].

June 19—J. P. O'Connor, doing business as the Penn Fuel Co., is deprived of his license as a coal distributor having sold high-volatile coal as bunker fuel.

June 20—Notice is served on the Tidewater Coal Exchange to dump coal promptly as received and not hold it for foreign bunkering so as to receive the higher price provided for such coal—Short Mountain colliery closes for two days while three men are buried [23, 24].

June 21—United States Fuel Administration declares that "Government prices" are maximum prices and that coal may be sold at lower prices to railroad and other customers at the pleasure of the operators.

June 22—New prices are set for anthracite received by rail or water on Lake Michigan and Lake Superior docks [1201].

June 24—United States Fuel Administrator approves prices set by local administration for coal produced in Texas [1201]—New prices are made for coke produced in Cumberland County, Tennessee, and at Ansted, W. Va. [1201].

June 25—James H. Hoover, of McClellandtown, Penn., is made to pay $2500 to American Red Cross for having violated the Fuel Administrator's orders in regard to the shipment of coke and having neglected to make reports as demanded by the Fuel Administration—James T. Lind, of Detroit, Mich., is made Director of the Bureau of Gas Plants in the Fuel Administration—Freight rates are increased in accord with General Order No. 28, dated May 25, 1918 [1020, 1021]—Dr. James Douglas, of Phelps-Dodge & Co., Inc., and of the Stag Canon Fuel Co., dies at Spuyten Duyvil, N. Y. [1217].

June 26—Henderson W. Knott appointed to take charge of engineers and inspectors investigating the power plants of the country and making recommendations relative to fuel economy—Coal operators of central Pennsylvania meet in Washington and condemn the giving of bonuses and like wage inducements. A board of nine persons will hear charges against operators whose rates of wage fail to conform to those set for them under the Washington Agreement [24].

June 27—Wagon Mine Owners' Association formed at Pittsburgh.

June 28—J. M. Roan is appointed field manager of the inspection section of the United States Fuel Administration [21]—Maximum price is set for cannel coal, the price to be $1 per ton in advance of the prices for bituminous coal in the district surrounding and 50c. a ton more being allowed where coal is shipped in a box-car [22].

June 29—New prices are set for coal produced in Hocking and Athens County, the southern half of Monroe township in Perry County, the Bailey Run or No. 7 seam, Guernsey Muskingum, Meigs and Jackson Counties [22]—Report of Federal Trade Commission condemning profiteering, the price of coal being quoted as an instance [21, 22].

Harrisburg, Penn.

A hearing was held in the Common Pleas Court of Pittsburgh recently on a petition of the Pittsburgh Coal Co. asking that an injunction be granted restraining the Pike Coal Co. from mining coal claimed to be the property of the petitioner and also from running an entry through an entry of the Pittsburgh Coal Co. The coal in question lies in a 112-acre tract of land in North Fayette township, where the Pittsburgh Coal Co. operates its Partridge mine. Each of the companies concerned has mining rights in the property and each claims that the other is mining coal that does not belong to it. The Court is asked to pass upon the question of how much of the coal in the property belongs to the Pittsburgh Coal Co., the deed to the Pike Coal Co. granting all the coal not previously granted to the petitioner. The Pike Coal Co. has found it necessary in order to reach all the coal owned by it, to drive an entry across an entry of the Pittsburgh Coal Co., and the latter asks that the Court restrain the former from crossing at grade. Judge Shafer directed that briefs be filed.

The acute labor shortage in the anthracite fields, due largely to the operations of the draft, is to be discussed at a conference of the local boards of the nine anthracite counties with state representatives at a meeting on Tuesday, July 16. The call for this meeting was issued on July 3 from state draft headquarters in this city. Early in the week the draft boards received from the district board at Scranton a circular stating that in future calls men holding certified miner's certificates, pump runners and others who cannot be replaced in the operation of mines would not be taken, and it is thought that the meeting to be held on the above date has been called to explain this action and discuss the advisability of further exemption.

The Board of Investigation appointed by the United States fuel administration to inquire into wasteful and uneconomic mines decided on July 1 to proceed at once against at least 25 bituminous coal mines in the central Pennsylvania district. Mines proved guilty of waste will be closed. Hearings will be granted in every case.

It is said that a good part of the car supply troubles in the central Pennsylvania district are due to the allotment system of the Pennsylvania R. R., which bases its rating of mines upon an estimate of working places instead of actual loading capacity. Under this system old mines are getting full-car supply, it is said, and in some cases are even getting more cars than they can load, while newer mines, with greater actual loading capacity, are restricted in supply and are hard pressed to hold their labor intact.

There has been an effort on the part of mine owners to get reratings from the Pennsylvania, but without effect. Now, it is understood, J. P. Cameron, the district distributor, is taking an interest and is endeavoring to get a rearrangement of car allotments.

Charleston, W. Va.

All the coal men of the state who have given the matter any thought assert that the most perplexing problem with which the industry is confronted is that of securing adequate man power to keep pace with the increasing car supply. Coal men conversant with the situation have no hesitancy in saying that the crux of the whole situation is the failure of miners to work for as long a period as they might and the inroads made upon the ranks of the miners by the draft. This is particularly true in the southern part of the state.

While the car supply this week for the Kanawha district is fair, the probabilities are that production will be curtailed owing to the fact that so many miners laid off for the holidays. Reports from Coal River in particular indicate that the mines there will be handicapped because so many of the miners went to Ohio or Kentucky over the Fourth.

The car supply in the New River district is all that can be desired, but the difficulty of getting men to work hampers production. In the opinion of one well known coal man identified with the New River field, it is no longer a car shortage which interferes with greater production. He is of the opinion that the government will have to more drastically enforce the "Work or Fight" order. The bonus system has had a tendency to disorganize the industry in sections where it has been attempted because it amounts, in the opinion of some operators, to nothing more nor less than stealing men, and the National Fuel Administration has advised against it. Hereafter it will be discouraged.

Conditions were somewhat improved in the Pocahontas and Tug River Districts during the last week in June, though labor shortage resulted in a loss of 40,508 tons. The car supply was a little better, however, there being about 42 more cars in the district. However, the increase in tonnage was not commensurate with the improvement in the car supply and in the labor supply, the total production for the districts mentioned being 439,672 tons. This repre-

sented a total of 7327 hours worked. From all causes, however, there was a tonnage loss during the week of 58,761 tons.

There was in the Fairmont field a fair run of cars during the week especially at the beginning and ending of the week. There was an over supply on Monday of last week but on Tuesday only a little over 1000 cars. By Saturday however, with 1573 cars available, only one mine of all those reporting was not in operation.

Louisville, Ky.

Kentucky's coal mines produced 27,355,727 net tons of coal during the year ended June 30, according to a report of Prof. C. J. Norwood, chief inspector of mines, at Lexington, Ky., and forwarded to Wiley B. Bryan, Fuel Administrator of Kentucky. The 19 coal counties in eastern Kentucky produced 17,479,194 net tons, and the ten counties in western Kentucky 9,876,533 net tons. Pike County, in the eastern Kentucky field, led the 29 counties in production with 3,838,358 tons. Missing reports and production from some wagon mines, which could not be obtained, would probably add 100,000 to 150,000 net tons to the total for the state. In order to take care of the 25 per cent. increase in coal freight rates, and increased cost of retail operations, the Jefferson County Fuel Administration has announced a general increase in all grades of coal, this increase being at the rate of 50c. a ton. Western Kentucky has gone to $5.90 a ton; Jellico, $7.10; Harlan, $6.75, and Hazard, $6.65. Western Kentucky mine-run is 25c. a ton lower than lump, and all other coals are 35c. a ton less for mine-run. For steam and industrial purposes the price is 50c. a ton less than to the domestic consumer. The dealer is allowed to charge $2.30 a ton for profit and operating expense on anthracite, $2.50 on coke, and $2.20 a ton on all other coals sold on this market.

Birmingham, Ala.

Coal miners throughout the Birmingham district, and from every section of Alabama, have given most patriotic response to the Government's appeal, and operations since July 1, including the Fourth of July, have been uninterrupted. The increased production is particularly noticeable at the Acton, Acmar and Margaret mines, where railroad freight cars in numbers were loaded July 4 and the day celebrated by full-time work on the part of the miners.

Efforts are now being made, particularly in the Birmingham mining district, to bring in labor for the mines, as the great complaint thus far has been that the unskilled worker is retarding rather than helping production. The Fuel Administration is lending every assistance to the mine operators and is using its influence to divert skilled workers to this district.

The Central Alabama Coal Co., with mines at Kimberly, in the northern part of Jefferson County, has begun mining of coal on the Black Creek seam, which lies under the Jefferson seam. The new seam coal will be brought out of the mines on the same slope, the haulage system being extended so as to reach the greater depth. It is intended to add to the force employed at Kimberly and increase production just as rapidly as possible.

All new mining propositions in the state are being worked to capacity, and the only trouble now being experienced is the inability to obtain sufficient skilled labor. The Railway Fuel Co.'s new mine at Parrish, the stripping proposition of the Eagle company in the lower section of Jefferson County, and the several other new mines recently opened up, are all doing exceptionally well.

The Woodward Iron Co. will soon be getting coal out of its mine west of Fairfield, where a camp is now being constructed. New mining projects of the Tennessee Coal, Iron and Railroad Co. in the Blue Creek region and elsewhere will also be pushed to the utmost during this month, it is officially stated.

Victoria, B. C.

Discussing the disallowance by the Dominion Government of the Provincial Statute giving the early settlers within the Esquimalt & Nanaimo Ry. belt the right to apply and, their claims on examination proving sound, to receive Provincial title to the coal rights in their lands, Hon. John Oliver, Premier of British Columbia, recently stated that he saw no reason why the Provincial Legislature, at its next session, should not be asked to reënact the legislation. This is taken to mean that the Province will insist on its power to give the settlers the privilege indicated. It also means that the present British Columbia Government is likely to maintain the principle of Provincial authority in the case in question. The issue is one of vital import not only to the settlers, whose coal lands are at stake, but as well to the Granby Consolidated Mining and Smelting Co., which holds Provincial title to valuable coal areas, and to the Canadian Collieries (D), Ltd., which claims title to all the non-alienated coal lands in the railway belt by virtue of the terms of the subsidy granted to the Esquimalt & Nanaimo Railway Co., in 1884.

PENNSYLVANIA

Bituminous

Connellsville—The Enterprise Coal and Coke Co. has bought a tract of land in Morgan Township, Greene County, Pennsylvania, for the record price of $700 an acre. The coal is the Pittsburgh seam, and it is said will be opened and operated immediately.

Connellsville — Announcement was made on July 6 that the coke workers on the Fourth of July had manufactured 60,000 tons of coke, a record for the Connellsville field. This is about 2000 tons above the daily average. The miners and coke drawers went to work as usual, the majority earning about $10 for the day. The output for the last week was 362,000 tons, indicating that the men at the different works are working every day.

Connellsville—An employee of the Fredericktown Coal and Coke Co., in the Fifth pool, Monongahela River, claims the coal-mining championship of the Connellsville region. John Slifko, a pick miner, dug and loaded 300 tons and 1000 lb. of coal in 12¾ working days, receiving $240.32 for his labor. Another employee, Joseph Cadman, earned $178,08 by loading 278 tons. At the same plant 45 miners averaged $137.42 each is earnings during the first half ow May.

Uniontown—Payment of $10,000 war risk insurance, taken out by John Meckleburg while he was in the National Army, is believed to have established a precedent for the administration of the war risk fund. Meckleburg met his death last March in an accident at the Continental No. 2 mine of the H. C. Frick Coke Co., two weeks after he had been honorably discharged from the army. While in the service he took out a $10,000 insurance act, dividing the payments between his parents.

Blairsville—The Pennsylvania Railroad Co. has completed a new concrete coal tower in its yards here. One of the greatest drawbacks for years, that of loading the locomotives with coal, will be eliminated and an engine can be coaled in a few minutes. The tower has a storage capacity of several hundred tons. Other improvements under way here are the enlargement of the roundhouse and extension of the yards to care for the increased coal traffic from the Indiana branch and West Penn branch.

Uniontown—The trustees of J. V. Thompson have sold to the Stern Coal Co., a local corporation, the coal underlying the 75-acre tract of land adjoining the County Home west of the town and already opened through the Snyder mine. The basis of the transfer is a royalty payment of $5800 per acre as the coal is mined. This tops by $800 a similar contract made last winter for the 100-acre County Home tract and is the high-water mark for Pittsburgh seam coal deals. The coal taken from this acreage will be sold in Uniontown for domestic consumption.

Anthracite

Pottsville—The Sherman Coal Co., operating on Sharp Mountain, has made application to the City Council for permission to extend its works to include a portion of Cressona Road. It is planned to increase the capacity.

Hazleton—The old workings at Hollywood, near here, have been reopened by the owners, Pardee Bros. & Co., and will be worked by electrical equipment.

The Cranberry Creek Coal Co., operator of the Cranberry mines near here, is receiving bids on a stripping proposition which will remove the overburden from a 22-ft. seam recently proved and plotted, and which adjoins its No. 4 workings.

St. Clair—The Pine Forest colliery, the newly opened operation of the Philadelphia & Reading Coal and Iron Co., broke all records on July 5 for a new operation when 1270 tons of coal were shipped. Officials say the production will be increased until a maximum of 1500 tons daily is reached. There is a spirited rivalry between this operation and the Ravensdale colliery, also a new Reading operation, and shipments from both are constantly increasing.

Nanticoke—An explosion of gas in the Loomis colliery of the Delaware, Lackawanna & Western Railroad Co., on July 6, resulted in four mine workers being badly burned, necessitating their removal to Nanticoke State Hospital. Their condition is serious, it is reported. Soon after the men were removed from the colliery hospital, the superintendent and other officials descended the shaft and braved the danger of afterdamp in conducting an investigation.

Port Blanchard—Showing that they are alive to the country's need for a maximum coal tonnage, the workers employed at the No. 14 colliery of the Pennsylvania Coal Co. last week established a remarkably high average production. One day 2600 cars were sent through the breaker. To bring about such a big production the men worked longer than the limit designated by union rules; in fact, in some cases some of the men worked double shifts, with none of the workers filing the least objection to the requests of the officials.

Scranton—The Scranton Coal Co., which operates the Pine Brook colliery, is about to open the New County seam. This seam contains a large amount of fine coal and will greatly extend the life of the colliery. The New County bed is about 100 ft. below the surface and is overlaid by the Fourteen-foot seam, which was worked out some years ago. For some years there was doubt about the practicability of mining the seam, but boreholes made by the company prove the seam averages from 5 to 8 ft. thick. It will be mined with machines.

Forty Fort—The growing peril of mine caves in the Wyoming Valley was pointed out by attorneys for the Temple Coal Co. in its appeal from the assessment placed by the county on the coal properties of the company on the west side of the Susquehanna River. In 1916 the board of county assessors increased the amount of coal as minable and removable from 62 to 70 per cent. The coal company appealed and holds that it is impossible to remove that percentage owing to the river wash, sand and gravel, and that any increase above 62 per cent. would endanger the property through extensive settlement and water from the river.

Mauch Chunk—Harry A. Butler and N. D. Courtright, the lessees of the Switchback R. R., have organized the Mount Pisgah Coal Co. The mine is on the top of Mount Pisgah, along the Switchback R. R., only a short distance from the place where the first anthracite coal mine in the world was opened shortly after the discovery of anthracite coal in Summit Hill in 1794 by Philip Ginder, the hunter. The coal from this mine was then brought to Mauch Chunk over the Switchback and run down the river by means of chutes and loaded into boats. The coal mined on Mount Pisgah is of the very best quality, and the new firm is making arrangements to carry on mining of anthracite on an extensive scale.

WEST VIRGINIA

Montgomery—A number of new houses for miners are being built by the New Export Coal Co. at its Perryville mine on Campbell's Creek in the Kanawha field.

Philippi—Colonel Albert Thompson, of Philadelphia, who has been operating mines at Meriden for a number of years, has disposed of his interests there to the Franklin Coal and Coke Co., of Philadelphia, the price paid for the Thompson interests being $800,000.

Kingwood—Plans for the operation on a large scale of coal mines in Preston County are being made by the P. N. and R. W. Coal Co., which recently secured a charter from the Secretary of State for a $50,000 company incorporated by I. R. Nicodemus, of Fairmont; J. W. Wise, T. M. Rotruck, of Williamsport, W. Va.; C. W. Powers and Annie Powers, of Piedmont.

Fairmont—The tipple and other buildings at the Montana mine of the Consolidation Coal Co. burned down last Tuesday were restored before the end of the week and the mine was in commission again Friday. Working day and night shifts, C. H. Tarleton, manager of the West Virginia division, had the repairs made and the mine in operation within 86 hours after the fire.

Charleston—A large tipple is being built by the Smith Mining and Fuel Co. at Pius, W. Va., preparatory to opening a mine in the Coalburg seam.

Twenty-five hundred acres of coal land in Boone County, leased on a minimum royalty, will be developed if the railroad and fuel administrations give their sanc-

tion. With a view to such development, Quinn Morton, a prominent Kanawha Valley coal operator, Walter S. Wood, Staige Davis, L. H. Bobbitt and Mary E. Morris, all of Charleston, have formed the Hopkins Fork Coal Co., to which a charter has been granted, the company having an authorized capital of $99,000.

VIRGINIA

Graham—The Bradshaw Coal Co. is planning to increase the capacity of its works. Considerable new equipment for operation will be installed.

Roanoke—The Ragland Coal Co. is planning for the installation of new electric equipment at its works. The installation will include generator, engine and auxiliary apparatus.

KENTUCKY

Star Hill—The Star Hill Coal Co., recently incorporated, is planning for the development of extensive coal properties in this vicinity. The company's land includes a total of over 100 acres, and complete mining equipment will be installed for operation. J. B. Rogers is vice president.

Wallins Creek—The Wallins Creek Colliery Co. has recently taken over the holdings of the Wallins Creek Coal Co., having a capacity of about 700 tons daily. Plans are now under consideration for extensive improvements and the installation of considerable equipment to increase the present output.

Mayking—Thomas G. Langford, Memphis, Tenn., and associates, are considering plans for the construction of a new two-mile branch railroad extending to an extensive tract of coal property recently leased on Pine Creek. It is planned to commence active operations for development at an early date.

Paducah—The Columbia-Panama Coal Co. has commenced surveys for the construction of a railroad line to reach its properties in the Goose Rock district. At this location the company has about 2000 acres of land and will install a complete equipment of mining machinery to develop the property. W. A. Calhoun is chief engineer.

Sebree—The New Sebree Mining Co., capital $100,000, is being organized to take over the operations of the Sebree Coal Co., one of the older operating companies of the district. The incorporators are F. T. Patterson, J. D. Smith and J. M. Anderson, all of Birmingham, Ala. Mr. Patterson will be president of the company, Mr. Smith, vice-president, and Mr. Anderson, secretary-treasurer.

OHIO

Jacksonville—The Ohio Mining Co. has opened a new mine, located on the Toledo & Ohio Central R. R., which will have a capacity of about 150 tons daily. The mine works in the No. 6 seam, which is 6 ft. thick. A modern tipple equipped with screens has been installed.

Bannock—Elsworth E. Brown has disposed of his 400-acre farm to the Union Coal Stripping Co., of Cleveland, Ohio. The farm is situated near Lafferty, a few miles from Bannock, and is part of the extensive coal belt extending from Flushing to a point in the Buttermilk Valley.

ILLINOIS

Springfield—Automatic coal feeders are being installed at the city pumping plant which are expected to reduce the consumption 10 per cent.

Collinsville—Fire of unexplained origin destroyed the plant of the Arctic Ice & Fuel Co. here on July 4, causing a loss of $10,000. In addition to the building a large motor truck and five mules were destroyed.

Athens—In response to farmers' appeals, miners have been doing a day's work in the harvest fields after doing a day's work in the mines. On coming out of the mines they eat a hasty supper and then go into the fields and shock wheat until dark. As it does not get dark until nearly 9 o'clock, their day in the fields is almost as long as their day in the mines.

Harrisburg—Defective helmets are said to have caused the death of William Taylor, Loren Whitler and Robert Kennedy, members of the mine rescue crew of the O'Gara mine No. 1, who succumbed when they entered a room June 29 which had been sealed for four weeks on account of fire. It is claimed that this could not have happened if the helmets had been all right.

Spring Valley—Every miner employed in the mines of the Spring Valley Coal Co. at Spring Valley and Dalzall, is a member of the American Red Cross and of the War Relief Association. They are giving at the rate of 50c. a man during the period of the war. The motion to pay this amount was put through in three locals without debate, without a protest and without a dissenting vote. Last week the Spring Valley Coal Co. sent in its check for $500, as a lump-sum contribution for the year for that company.

Ziegler—The Ziegler Coal Co., which has completed the purchase of 2000 more acres of coal lands in Franklin County, Illinois, now has 9000 acres of the finest coal lands in the county. Best of all, these lands lie in one body. The Bell & Zoller Mining Co. is now operating the large 5000 ton-a-day mine on these holdings, and is at present sinking a new mine south of Ziegler which will give them a daily capacity of 6000 tons. The sum of $1,500,000 is being expended on the new mine, which will be one of the finest in the state. There are now 1000 men employed at Mine No. 7, and it will require 1400 men at the new mine. Most of the men earn from $5 to $9 per day. There are now 116 new residences in Ziegler all built along modern lines, and 200 more houses will be constructed by Jan. 1, 1919. Ziegler is now an incorporated town and has been since Aug. 17, 1917. Prior to that date it was only a mining camp owned by one man.

ALABAMA

Bessemer—W. C. and R. E. Sellers, of Birmingham, who recently sub-leased from J. J. Shannon and associates Bamford mine, about 12 miles from Bessemer, will shortly begin the production of coal from this opening, which has been idle for a number of years. The old spur to the Southern Ry. has been reconstructed, and structures and mining equipment have been provided for resumption of operation.

Birmingham—The Southern Cotton Oil Co. has purchased the properties of the Summit Coal Co., located near Dora, Walker County, and consisting of about 900 acres of Black Creek coal, the consideration as reported being $45,000. It is announced that improvements will be made, including the erection of a new washer and installation of electrical haulage. The purchasers expect to provide their various plants with fuel from the properties purchased, on which there is now an opening producing about 125 tons daily.

The Republic Iron and Steel Co. is making good progress in the construction of its new washeries and screening plants at Sayreton, Jefferson County, and Palos, Walker County, the only deterring features being the scarcity of labor and the difficulty and delay experienced in securing deliveries on equipment.

OKLAHOMA

Henryetta—The Fretwell Coal Co., which recently filed notice of an increase in its capitalization from $10,000 to $50,000, has commenced active operations on the development of a tract of coal lands comprising 490 acres. It is planned to have a daily capacity of 500 tons.

Foreign News

Winnipeg, Man.—At a joint meeting of the Board of Control and Civic Coal Committee on June 29, it was stated that of the 150,000 tons of soft coal required as a minimum for the winter supply only 25,000 tons had already been secured. Mayor Davidson stated that it was no longer a question of price, but one of getting the coal at any cost or freezing next winter. It was decided to send two members of the Civic Coal Committee to Alberta to investigate coal conditions there.

Personals

George Wall has been made superintendent of the Christian Colliery Co., at Mahan, W. Va. Mr. Wall was formerly superintendent of the Coal Valley Coal Company.

F. E. Herriman, coal traffic manager of the New York Central, who on June 19 was appointed vice president of the Clearfield Bituminous Coal Corporation, on July 8 was elected president of the corporation.

M. W. Price, who was safety engineer with the Lehigh Valley Coal Co. for a long period, and more recently with Weston Dodson & Co., in their southern mines, has taken a similar position with the G. B. Markle Co. at Jeddo, Pennsylvania.

I. J. Barry, of Indiana, Penn., has resigned his position as superintendent of the Indiana County Street Railways Co. to become general manager of the Bardes Six-Four Coal Co. in which he is interested. The Bardes company is opening two new mines near Homer City, Pennsylvania.

Josiah Bachman, secretary and treasurer of the Weston Dodson & Co., Widener Building, Philadelphia, Penn., and connected with the company for the past forty years, has resigned from active service, effective July 1. George C. Radford, formerly assistant treasurer, has been elected treasurer succeeding Mr. Bachman, and C. B. Jacoby has been elected assistant treasurer.

Obituary

Dr. John S. Wentz died on July 1 at his home in West Philadelphia, Penn., aged 81. He was prominently identified with anthracite mining for many years, representing the Wentz and Leisenring interests in the management of the Upper Lehigh Coal Co., Mary D. Coal Co., Midvalley Coal Co. and J. S. Wentz & Co., as president. Dr. Wentz and family associates acquired some 100,000 or more acres of bituminous coal lands in southwestern Virginia, organizing under the name of Virginia Coal and Iron Co. A part of these holdings was operated by the Wentz interest as the Stonega Coal and Coke Co. During the last ten years his son, Daniel B. Wentz, now in the service in France, was the practical head of these coal companies.

Trade Catalogs

Cambria Wire and Nails. Cambria Steel Co., Philadelphia, Penn. Pp. 47; 4¼ x 7¼ in.; illustrated. Latest edition of the Cambria company's wire and nail catalog.

C-H Battery Charging Equipment. Cutler Hammer Manufacturing Co., Milwaukee, Wis. Pp. 4; 8½ x 11 in.; illustrated. Describes charging equipment for electric vehicles and industrial trucks.

List of Steel and Other Products. Midvale Steel and Ordnance Co., Cambria Steel Co., Philadelphia, Penn. Pp. 55; 4¼ x 7¼ in.; Unillustrated. An index of the more important products manufactured by the company.

Circular Letter No. 123. Ironton Engine Co., Ironton, Ohio. Pp. 4; 8½ x 11 in.; illustrated. Describes three Ironton locomotives "that will gather coal under all conditions." Specifications are given for the three machines.

Twenty-eight Years of Steel Pipe Progress. National Tube Co., Pittsburgh, Penn., Pp. 4; 8½ x 11 in.; illustrated. Tells graphically the story of years of progress in the manufacture of the National Tube Co.'s product.

Sullivan Ironclad Coal Cutters. Sullivan Machinery Co., Chicago, Ill. Bulletin No. 73. Pp. 48; 6 x 9 in; illustrated. Describes this concern's cutter for room-and-pillar and longwall mining. Ironclads of both types are manufactured for electric drive, either direct or alternating current, or for compressed-air drive, with "Turbinair" motors.

C-H 9116 Starting Switch for Squirrel Cage Motors. Cutler-Hammer Manufacturing Co., Milwaukee, Wis., Pp. 4; 8½ x 11 in.; illustrated. Two-color pamphlet showing four typical installations of this type of switch. An interior view shows construction and arrangement of starting and running contacts, fuses, etc. Manner in which motor is connected to the line ahead of the fuses, without opening circuit to the motor in the transition, is clearly indicated.

Publications Received

Weights of Various Coals. By S. B. Flagg. Department of the Interior, Bureau of Mines. Technical paper 184. Unillustrated, 11 pp., 6 x 9 inches.

Monthly Statement of Coal-Mine Fatalities in the United States, March, 1918. Compiled by Albert H. Fay, Department of the Interior, Bureau of Mines. Unillustrated, 21 Pp., 5¼ x 9 inches.

Report of the Committee on the Standardization of Mining Statistics. Compiled by Albert H. Fay, Department of the Interior, Bureau of Mines. Technical paper 194, unillustrated, 39 Pp., 5¾ x 9 inches.

The Quick Determination of Incombustible Matter in Coal and Rock-Dust Mixtures in Mines. By A. C. Fieldner, W. A. Selvig and F. D. Osgood. Technical paper 144, illustrated, 33 pp.; 6 x 9 inches.

Abstracts of Current Decisions on Mines and Mining. Reported from September to December, 1917. By J. W. Thompson. Department of the Interior, Bureau of Mines. Bulletin 164, Law Serial 14. Unillustrated 146 pp., 6 x 9 inches.

Industrial News

Ashland, Ky.—The Green Rock Coal Co. has filed notice of an increase in its capitalization from $5000 to $25,000 to provide for expansion.

Richmond, Va.—The Sabine Collieries Corporation has filed notice of an increase in its capitalization from $500,000 to $600,000, to provide for business extensions.

Charleston, W. Va.—The Harry B. Coal and Coke Co. has recently filed notice of an increase in its capital from $100,000 to $300,000, to provide for business extensions.

Middlesboro, Ky.—The Riverside Coal Mining Co. has filed notice of an increase in its capitalization from $25,000 to $50,000, to provide for extensions, improvements, etc.

Chicago, Ill.—The Michigan Central Railroad Co. has taken bids for the construction of a new coaling station to have a capacity of 300 tons, to be located at North Toledo, Ohio.

Chelsea, Mass.—Ribock & Sevinor, 72 Walnut St., have awarded a contract for the construction of a new 1-story coal elevator plant at their works, about 30 x 60 ft., to cost $10,000.

Utica, N. Y.—The Bossert Co., 1019 Hickory St., has had plans prepared for the construction of a new coal pocket at its plant to cost about $10,000. James R. Jones is general manager.

Juneau, Alaska—Preliminary work has been started by the Alaskan Engineering Commission in the construction of a spur track into the Baxter coal mines on Moose Creek, from the Chickaloon branch.

Mannington, Ky.—The Memphis Coal Co. is considering plans for the immediate erection of a new steel tipple. The company is also planning to increase the capacity by the development of an additional mine.

Whitesburg, Ky.—The Long Ford Coal Co., recently organized, has leased an extensive tract of coal lands near Long Fork, and is planning for the immediate installation of the necessary machinery for development.

Baltimore, Md.—The Penn Smokeless Coal Co., Pittsburgh, Penn., has recently acquired property at Lawrence and Decatur Sts., Baltimore, and is planning for the construction of a new coal tipple, storage bins and offices.

Whitesburg, Ky.—The Elkhorn Superior Block Coal Co. has filed notice of an increase in its capitalization from $35,000, to $100,000, to provide for the installation of new equipment at its plant, including electrical machinery.

Birmingham, Ala.—The Turkey Creek Land and Coal Co. has been incorporated with a capital of $10,000 to engage in a general coal-mining business. Charles E. Francis, A. W. Stearns and George Maesta are the incorporators.

Oakdale, Penn.—The Carnegie Coal Co. is rebuilding its tipples at Armide and Oakdale mines, having contracted with the Roberts & Schaefer Co., engineers and contractors, Chicago, for Marcus picking table screens at each mine.

Akron, Ohio—The Canton-Akron Coal Co. has been incorporated with a capital of $50,000 to mine and sell coal. The incorporators are James R. McAllister, Charles Blain, J. E. McAllister, Leo A. McAllister and John E. Morgret.

Hornell, N. Y.—The Erie Railroad Co., Jersey City, N. J., has awarded a contract to Fairbanks, Morse & Co., South Wabash Ave., Chicago, Ill., for the construction of new coal pockets with equipment, at Hornell. The work will cost about $150,000.

Charleston, W. Va.—Having leased a tract of coal land on Campbell's Creek in the Kanawha field, J. S. Cheney, formerly of the Stonegap Colliery Co. at Glamorgan, Va., and James Raisbeck, together with their associates, will develop the leased property.

Seattle, Wash.—The price of Wyoming coal has increased 35c. a ton in California, the raise being granted by the fuel administration to meet a higher price at the mines. Increases of 50c. per ton on California coal and 75c. per ton on coke to cover added cost of transportation were authorized July 1.

Cincinnati, Ohio—The Reliance Coal and Coke Co., 897 Union Trust Building, is pushing arrangements for installing modern coal-handling equipment in the old Marmet Coal Co. yards, recently acquired, and is purchasing coal-elevating and handling machinery as well as trackage and equipment for yard purposes.

Louisville, Ky.—Philip M. Riefkin, of Washington, D. C., and Alexander Henry, Jr., of Wilmington, Del., have contracted with 41 operators in the western Kentucky field for 7000 tons of coal per day to be delivered to the Hadley's Bend plant of the DuPont Powder Co., near Nashville. The contract is dated Apr. 1, 1918, and runs for a period of one year.

Henry Ellen, Ala.—The Donaldson-Stobert Coal Co., recently organized, is planning for the immediate development of approximately 280 acres of coal lands to have a capacity of from 300 to 400 tons daily. J. W. Donaldson is president; Thomas Berry, vice president; and T. Stobert, secretary and treasurer. Offices of the company are in the Brown-Marx Building, Birmingham.

Warfield, Ky.—The Easton Coal Co. has leased extensive properties on Buck Creek, including several mines having a capacity of about eight carloads per day. It is said the company is planning for extensive improvements and the installation of the necessary machinery to provide a daily capacity of about 35 carloads. The work is estimated to cost approximately $300,000. D. W. Farquharson, Welch, W. Va., is president.

Clendenin, W. Va.—The Elk Gas Coal Co., recently incorporated with a capital of $50,000, has perfected its organization and is planning for immediate work on the development of 400 acres of coal lands, to have a capacity of about 100 tons daily for initial operations. Work will be commenced at once on the installation of the necessary machinery, including hoisting apparatus, electric motors, etc. L. V. Koontz is president.

Columbus, Ohio—The Ohio Board of Administration has started to purchase approximately 500,000 tons of coal for the various state institutions under its care. This is the earliest that the board has started its purchasing, but a valuable lesson was learned last winter. The board has also purchased four large motor trucks to transport coal to the institutions whenever possible. Additional storage space has been provided at most of the institutions.

St. Louis, Mo.—The East St. Louis Retail Coal Dealers' Association, of which John Thomas is president and J. T. Maule, secretary, has filed with Fuel Administrator Baxter a petition for permission to charge higher prices for coal. They state that at the present prices, $4.50 for Standard, $4.75 for Mt. Olive and $5.25 for Carterville, the gross margin is $1.20 per ton, which they say is much below the margin allowed in St. Louis and St. Louis County, and in various Illinois cities.

Columbus, Ohio—Joseph H. Frantz, the newly appointed Ohio Fuel Administrator, has taken up his duties, and his first announcement was the retention of C. F. Mayer as executive secretary. Mr. Mayer has been operating the office since the resignation of H. H. Johnson, the former administrator. The administration has started a new survey of the amount of coal in the cellars and bins of domestic users, and a full report will be forthcoming in the near future.

Chicago, Ill—The Chicago Pneumatic Tool Co. announces the appointment of L. C. Sprague as its special representative in connection with the sale of pneumatic tools to railroads. Mr. Sprague was formerly connected with the tool company, but more recently has been connected with the railroad department of the H. W. Johns-Manville Co., New York City. His long connection and association with the railroads of this country especially fits him for the work which has been assigned to him.

Toledo, Ohio—Considerable activity prevailed at the docks during the past week, despite the intervention of the holiday. This is shown by the records of loadings at the Hocking Valley and Toledo & Ohio Central docks. The Hocking Valley docks loaded 157,427 tons for the week ending July 6, as compared with 140,450 tons the previous week, making a total of 1,334,804 tons since the opening of navigation. The Toledo & Ohio Central loaded 61,000 tons, as compared with 63,735 for the previous week, making a total of 700,000 tons since the opening of the lake season

New York, N. Y.—The Quigley Furnace Specialties Co., Inc., has opened a branch office in Pittsburgh at 427 Oliver Building, to handle the sale of powdered coal equipment, and Hytempite furnace cement. The powdered-coal engineering department will be in charge of L. V. Marso, formerly maintenance engineer of the A. M. Byers Co. plant at Girard, Ohio, and the specialties department will be taken care of by J. L. Cummings, Jr., formerly connected with the sales department of the company at New York.

Columbus, Ohio—J. M. Roan, who has been appointed field manager for the inspection division of the Federal Fuel Administration, effective July 1, is now organizing his office force. He will have his headquarters in Columbus and his jurisdiction will be country wide, extending in all mining districts. He has authority to name deputy inspectors to see that coal is prepared and cleaned properly. Just how many inspectors he will name has not been determined as yet. He also has authority to make suggestions and orders if necessary, to both operators and miners, in carrying out his duties.

Buffalo, N. Y.—The Consumers' Collieries Corporation has been organized here, with W. H. Hayden, president and treasurer; Willis M. Spaulding, secretary, and Charles B. Kinne, general sales manager. The company owns the Good Hope mine near Reynoldsville, Penn., which has been operated in a small way for the past year. It is now being put into condition to produce 300 tons daily in about 60 days. A second opening was planned, which is expected to bring production up to 1000 tons daily. The principal office is in Buffalo.

Louisville, Ky.—The Gordon & Miller Coal and Coke Co., composed of Ross E. Gordon, J. S. Miller and Boyce Watkins, is planning to file charter papers with a capital of $200,000 within a few days. The company has arranged to take over the improved mine of the Lynndale-Jellico Coal Co., at Lynndale, Ky., near Barbourville, on the main line of the Knoxville division of the Louisville & Nashville. The company has a tipple and trackage into its plant. It is planned to put in additional machinery, a power plant and other equipment to increase the capacity to about 20 cars a day.

East Pittsburgh, Penn.—The Westinghouse Electric and Manufacturing Co. announces a change in representation in its Western District, with headquarters at Indianapolis, Ind. Prescott C. Ritchie has been appointed district representative to succeed H. S. Johnson, whose resignation becomes effective June 30. Mr. Ritchie has had a considerable amount of experience in the automobile industry, having been in charge of headquarters' inquiry work, for the Western District, in the main offices of the company for some years past, and prior to that time he was connected with the Thomas B. Jeffrey Co. at Kenosha, Wisconsin.

Columbus, Ohio—The Buckeye Coal and Railway Company, of Columbus, has closed a number of leases on acreage in Athens and Hocking Counties which means the opening of quite a number of new mines in the Hocking Valley district. In all cases the leasing company retains the sale of the coal. Among the leases are:

Snow Fork Coal Co., 200 acres in Hocking County located near Murray on the Hocking Valley Ry. to be developed at once and to produce about 50,000 tons yearly.

Riddle Coal Co., of Murray, 50 acres in Ward township, Hocking County, No. 6 seam, entry being driven and spur under construction.

Star Coal Co., not incorporated, De. E. M. Cox, manager, 100 acres in Trimble township, Athens County, partly worked-over land. A new plant is under construction to mine No. 6 seam.

The Oakland Fuel Co., of Sand Run, has leased 153 acres of No. 6 seam in Ward Township, Athens County, which has been worked over. A new plant is being constructed.

The North Hocking Coal Co. has leased 320 acres of No. 7 coal near Murray. The tract will be developed immediately.

MARKET DEPARTMENT

Weekly Review

Large Production of Bituminous Continues—Conservation and Curtailment the Order of the Day—Anthracite Industry Doing Its Utmost to Maintain Output—Distribution Receiving Attention—Markets Active

GRATIFICATION at the continued large production of bituminous coal is tempered by several circumstances which would tend to indicate that Fuel Administration officials, though optimistic, are in nowise prone to underestimate the probabilities of a fuel shortage next winter. "Lightless nights" are again to be resorted to, as much for their psychological effect on the coal-consuming public as for the coal saving that will result; non-war industries are discovering that the plan to curtail their fuel supply is no empty bubble—witness the 50 per cent. reduction to brewers of alcoholic and non-alcoholic cereal beverages; and now the Hoover idea has been extended to the domestic consumer, who will receive only enough coal to keep his indoor thermometer hovering around 68 degrees.

The railroads at this time of the year operate at the peak load of their efficiency. Weather conditions are propitious to the rapid movement of cars; crops have not yet been harvested and therefore do not congest transportation facilities; the unified control of the railroads makes for general betterment in service—all of which was reflected in the output of 12,458,000 net tons of soft coal during the week ended June 29.

The status of the anthracite situation has undergone no change. For the week ended June 29, shipments of hard coal amounted to 41,641 cars, 471 cars in excess of forwardings for the preceding week, but still less than the best performance made in the recent past. So insistent is the demand for anthracite that all the inventive genius in the hard-coal industry is engaged in the task of devising new means of producing more coal. Modern devices are being installed; old abandoned mines are being opened up and worked anew; more electric power is being used to supplant rapidly diminishing man power; miners are being asked to do their best in the interest of the Nation. Suffering from a shortage of labor, and with no relief in sight, the anthracite industry is doing its utmost to maintain a maximum output close to 275,000 tons of hard coal daily.

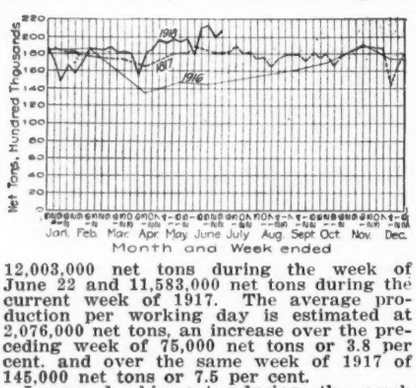
Recognizing the importance of stimulating and speeding up the production of both anthracite and bituminous, the Fuel Administration at the same time realizes that unless there is a proper distribution of the coal after it leaves the mines many injustices and hardships will be worked. To that end each retailer in the United States has been ordered to report the amount of his coal receipts, the quantity he delivers and the stock he has on hand. The plan has been in operation in New England for some time, and now it is to be extended throughout the country. For failure to comply with the regulations in this regard, 750 retailers in New England recently were given five days in which to file their reports or have their supply shut off. So it can readily be appreciated that this order has teeth in it.

Both the wholesale and retail domestic markets are active, and much coal is being distributed and stored. However, retailers are not receiving anything like their requirements, and householders are thus being greatly delayed in laying in their winter supply. New York and New England seem to be as needy of coal as ever, and the trade is wondering if the movement of 900 cars a day to New England will be ordered to continue throughout July.

With the steady shipment of coal to the Lakes from the West Virginia section which was set aside exclusively for that purpose, the movement of coal to the lake ports is assuming larger proportions. It appears to be more and more evident that unless something unforeseen occurs the Middle West and the Northwest will be well taken care of by the time cold weather sets in.

COAL PRODUCTION

Production of bituminous coal during the week ended June 29 not only exceeded the production of the week of June 22 by 455,000 net tons, or 3.8 per cent., but resulted in the second highest weekly production in history. The output (including lignite and coal made into coke) is estimated at 12,458,000 net tons as against



12,003,000 net tons during the week of June 22 and 11,583,000 net tons during the current week of 1917. The average production per working day is estimated at 2,076,000 net tons, an increase over the preceding week of 75,000 net tons or 3.8 per cent. and over the same week of 1917 of 145,000 net tons or 7.5 per cent.

Increased shipments during the week ended June 29 were reported from all districts with the exception of central Pennsylvania and Alabama. The decrease from Pennsylvania amounted to 1.8 per cent. and from Alabama 2.4 per cent. Material increases in shipments from the district including northeast Kentucky, high-volatile fields of West Virginia and the smokeless fields of West Virginia amounted to 13.0 per cent., from southwest Virginia 11.8 per cent., from Ohio 10 per cent. and from the Fairmont district 5.7 per cent.

Anthracite shipments increased 471 cars during the week ended June 29, the total movement amounting to 41,641 carloads.

CARLOADS OF COAL ORIGINATING ON PRINCIPAL COAL-CARRYING ROADS

	Week Ended			
	June 8	June 15	June 22	June 29
Bituminous shipments, 123 roads.	219,839	222,892	212,849*	221,801†
Anthracite shipments, 9 roads....	40,754	41,960	41,170	41,641

* Revised from last report. † Subject to revision.

Material decreases occurred during the week of June 22 in Illinois, Indiana, southern Ohio, Westmoreland, Fairmont, southwest Virginia and in Kansas and Missouri. Insufficient car supply caused production to decline in Indiana, southern Ohio and Fairmont, while in Illinois the declined production is attributed to both car and labor shortages, in Westmoreland and Kansas and Missouri mainly to labor shortage and in southwest Virginia to mine disability and other causes. Increased production in the high-volatile fields of southern West Virginia and in the Hazard and northeastern Kentucky fields is entirely attributed to better transportation conditions. The increase in northern and central Ohio and in Oklahoma and Arkansas is due to improvement in car and labor conditions. During the week there was a market in Illinois for all coal mined while in Kansas and Missouri and in the far west states market conditions improved considerably.

Beehive Coke—The production of beehive coke in the United States during the week ended June 29 is estimated at 604,000 net tons, a decrease compared with the week preceding of 6000 net tons or slightly less than 1 per cent. The average production per working day is estimated at 101,000 net tons as compared with 102,000 net tons during the week ended June 22. The principal operators in the Connellsville, Greensburg and Latrobe districts of Pennsylvania report production for the week ended June 29 at 401,114 net tons, the plants being operated at 77.4 per cent. of their present capacity in comparison with 75.5 per cent. during the week of June 22.

Byproduct Coke—The byproduct plants of the country were operated at over 90 per cent. of their full-time capacity during the week ended June 29. The operators reporting produced 496,396 net tons, their plants being operated at 90.5 per cent. as against 89.4 per cent. during the week of June 22. Losses due to labor shortage and repairs to plants decreased during the week, causing the improvement. Material increases in production occurred in Alabama and Pennsylvania. The operators in the former state attribute the improvement to a hundred per cent. coal supply and repaired plants, and the latter state to better labor conditions.

Atlantic Seaboard

BOSTON

A gradual increase in all-rail receipts, but volume is still inadequate to build up necessary stocks. Clear now that 4500 cars weekly from central Pennsylvania for New England cannot be relied upon. Several instances at tidewater where cargo space is in excess of coal available. Diminished output and heavy requisitions for naval and army transport account for smaller volume at Hampton Roads for New England consignment. While supply of shipping increases from week to week, loss of 25 per cent. efficiency estimated through difficulty in getting and keeping crews, especially in boiler rooms. Railroad situation begins to get action from Washington, but results thus far are meager. Coal at Boston & Maine gateways still being diverted from commercial users. Fuel authorities keep close check on receipts both by rail and water. Anthracite shipments fall off week ending July 6. Much anxiety over inroads of the draft on certified miners. Barges still move slowly.

Bituminous—Efforts at Washington a month ago begin to show results. The receipts of bituminous at the five New England gateways have gradually increased the last fortnight, the average for the first 7 days of July having been 741 cars against the 615 daily average for June. This is apparently the result of the order dated at Washington, June 10, instructing district representatives to direct operators to ship up to 100 per cent. on all New England orders and contracts in hand, after certain important needs in market territory had been cared for. Aside from occasional diversions to relieve congestion at New York piers, nothing has so far been shipped on special requisition by the New England Fuel Administrator, a provision designed to help those steam-users who had been unable to secure contracts, but it is possible that this month will see consignments of this kind started forward.

By this time it is perfectly plain that the weekly movement from the Altoona district alone cannot be worked up to 4500 cars, under the heavy demands in other directions. Bunker purposes at New York are necessarily favored for transport and other service, and the volume for other requirements at the piers has thereby been reduced. Important munition plants in Connecticut have had to encroach on their stocks of high-volatile to feed their steam plants, receipts for their account having fallen off so rapidly during June.

The time when there will be a surplus of coastwise shipping as compared with coal available at the piers is fast approaching. Already there have been cases where steamers under charter by important utilities have been sent to Hampton Roads with no assurance the coal would be furnished. In other cases a number of shippers have had to join in loading part cargoes in order to clear waiting vessels. Large requisitions in favor of byproduct plants and then also the exacting demand for export to the Allies and for transport, the navy, and other Government services have materially curtailed the volume of coal available for this territory. Output in the smokeless districts has also fallen off, and what most operators have foreseen is already taking place. The draft is seriously cutting into the labor supply, especially in the Pocahontas field, where the proportion of non-citizens is very small. The great demand for coke also has its bearing on the supply of run-of-mine, and shipments west are still continuous under special permits. July is likely to make an even more unfavorable showing for New England, than June, and at this writing it is hard to see how ships are to be given dispatch later in the season.

The movement via Curtis Bay and Port Covington has increased, but not to the extent called for by program. The flow of coal is irregular, and already colliers arriving at the piers have been subjected to delay. There are many in the trade who are skeptical of Baltimore & Ohio and Western Maryland movement, and there are many buyers who join in the same opinion. With the New England railroads still moving coal freely from connecting roads, it is hard for them to see much merit in restricting Somerset, Georges Creek and Fairmont coals from the all-rail route.

Were it not for the delay in manning and keeping in operation the 94 steamers now in the coastwise coal service, surplus of shipping would be much more pronounced. It is figured that the loss in efficiency is at least 25 per cent. for this one reason, taking the fleet as a whole. Steamers that were counted upon to make 34 to 38 round trips per year are barely making one trip a month. Time was when certain of these ships would make 47 trips per year. The problem of securing crews and keeping them aboard grows more and more serious.

The railroad fuel situation shows no real improvement. Under the distribution plan announced late in May railroad and Government departments were to be supplied through the Fuel Administration at Washington. The New England roads have found it necessary, however, to make frequent calls on Mr. Storrow, to such extent that not only a considerable tonnage is still being diverted at the gateways from commercial consignees, but hardly a cargo reaches Boston for inland distribution that is not heavily requisitioned for railroad fuel. Even with strenuous efforts the Boston & Maine reserve has increased hardly any. The proper department at Washington has now taken notice of the situation, and two cargoes, amounting to 5900 tons, have been put in process at Baltimore. The summer consumption of the Boston & Maine is about 4700 tons daily.

An interesting meeting was held on July 9 in Mr. Storrow's office with further regard to the compensation to be granted "wholesalers" who do not handle cargoes through their own wharves in such a way as to meet the regulation on "physically handling." A fortnight ago Mr. Storrow fixed the Massachusetts compensation as 23c. per net ton (including purchasing compensation), but since then the New York Fuel Administration has granted 35c., and the Connecticut and Rhode Island administrators have felt it incumbent on them to meet the advance or see coal go to New York consignees. It developed at the meeting that there was a pronounced feeling among shippers against anything that would look like profiteering or that would open the gate to paving bonuses for coal. As an outcome the Massachusetts compensation will probably be advanced to 35c. on shipments out of New York, leaving Hampton Roads deliveries for the present on the 23c. basis for such wholesalers as come within the rule. Washington should now see the point and revoke the celebrated licensing rules 24 to 26, and thereby shut down on any such competition as has already come to light between different territories drawing coal from the same source.

Anthracite—The holiday had its usual effect upon hard-coal shipments, and shipments from the mines since then have fallen off noticeably. The trade is anxious over the continued drafting of skilled anthracite mine workers and one frequently hears the hope expressed that the authorities will find some way to remedy the loss in labor that will presently make itself felt in reduced output. For the first five days in July the average daily receipts of domestic sizes at the New England gateways were 491 cars. Steam sizes averaged 177 cars. Barge movement has slowed up to quite an extent, due chiefly to the precautions still being taken against sea raiders, and partly also to thick weather. It is certain that July receipts will be considerably less in New England than in June.

NEW YORK

Anthracite conditions continue serious. Domestic coals scarce. Organizations ask for State Fuel Administrator. Change to be made in bunker coal pools. Demand for bituminous remains heavy, with free coals hard to pick up.

Anthracite—The continued heavy production is having but little effect on the situation, which is becoming more critical as the season advances, with the increased demand from war industries and domestic users. Labor conditions are not improving. Men continue to be drafted, while others are leaving the mines for higher wages at munition plants, shipyards and other industries. It is claimed that some collieries, because of the labor shortage, are unable to operate more than 50 per cent. capacity.

Locally the situation remains serious. There is a continued scarcity of domestic sizes, including pea, and dealers are thoroughly aroused over the prospects of a shortage here next winter. For this reason the trade is anxious that a State Fuel Administrator shall be appointed at once. They continue to put forth arguments as to the necessity of an appointment being made at once if this market is to have its share of coal. Frequent meetings are being held in various parts of the city, and Dr. Garfield is being urged to fill the vacancy caused by Mr. Wiggin's resignation several weeks ago.

The newest order of the Anthracite Committee, wherein it is directed that water shipments into New England must be on the largest possible scale, and that shipments by rail should exceed one-twelfth of the rail shipments of the 1916-1917 period plus the increased percentages allotted the state into which shipments are made, attracted considerable attention here. The committee says that shippers who have not during April, May and June exceeded one-third of the annual shipments of the 1916-1917 period plus the increased percentages should make up during July the deficiency, in addition to the other rail shipments. This will result, in the opinion of some of the trade in this market receiving less coal than it would if the order had not been issued.

There were 6951 cars of anthracite dumped at the New York tidewater docks for the week ended July 8, as against 7426 cars the week previous, a decrease of 475 cars, due in part to the holiday, on which only 14 cars were emptied.

The New York County Fuel Administrator, Reeve Schley, has issued an order to all retail dealers and shippers prohibiting the delivery of buckwheat No. 1 and larger sizes of anthracite coal to other than the consumers named in Section No. 1 of the order of the United States Fuel Administration of Jan. 17.

Dr. Day, Commissioner of Public Markets of this city, has announced that he has closed negotiations with the DeJulio Co., of 220 Broadway, whereby this city will receive 300,000 tons of coal from the Schuykill regions to take care of the needy next winter. Deliveries are expected to begin soon after the formal contract is signed.

The steam coals are scarce, with a good demand. Buckwheat No. 1 is hard to pick up, and with the new order of Mr. Schley is not expected to increase in supply.

Current quotations per gross ton f.o.b. tidewater at the lower ports, follow:

	Circular	Individual		Circular	Individual
Broken	$6.50	$7.25	Pea	$4.90	$5.65
Egg	6.10	6.85	Buck	4.85	5.60
Stove	6.35	7.10	Rice	4.35	4.80
Chestnut	6.45	7.20	Barley	3.85	4.00

Quotations for domestic coals at the upper ports are generally 5c. higher on account of the difference in freight rates. Prices for buckwheat, rice and barley are not fixed by the Government.

Bituminous—The local situation continues serious. Stocks are low and there is small opportunity for consumers to lay in an extra supply. Large consumers and regular customers are able to obtain sufficient to keep their plants going, but are not able to store any for future use. Car supply shows some improvement, but the labor situation remains a menace.

There is plenty of bunker coals to be had; in fact, some shippers are said to be over-stocked. This supply will probably be reduced shortly, and the quantity of coal available for commercial uses increased by the issuance of an order on Monday by the United States Fuel Administration to the effect that coals in Pools Nos. 1 and 9 are to be used for transatlantic ships and that coals in Pools Nos. 4 and 10 are permissible for coastwise and river steamers.

Dumpings of bituminous at the local tidewater docks for the week ended July 8 show that 7089 cars were dumped as against 7228 cars the preceding week, a decrease of 139 cars.

The order issued from Washington a couple of weeks ago directing that 900 cars be sent daily from the central Pennsylvania fields into New England is still in force, with the result that this market is not receiving as much coal as it ought to get.

In regard to the margin of 35c. per ton on coal physically handled by jobbers, Ellery B. Gordon, assistant to the State Fuel Administrator, has written to Charles S. Allen, secretary of the Wholesale Coal Trade Association, explaining further several points in connection with the ruling. He says that sales agents who obtain this commission from the mines will be expected to take this margin minus the amount of commission they received from the mines; that the order is a provisional one and quite liberal, and that he wishes to caution wholesalers from taking advantage of it where their conditions of operation do not justify the full margin of 35c.; and thirdly, that it is not the intention that the ruling will bring about a competition between sections, but that irrespective of the margins permitted at various points served by New York wholesalers they will place their tonnage where it is needed most without regard to margins, following their usual proportionate distribution as far as possible.

Current quotations, based on Government prices at the mines, net ton, f.o.b. tidewater, at the lower ports, are as follows:

	Mine Gross	F. o. b. N. Y. Gross
Central Pennsylvania:		
Mine-run, prepared or slack.....	$3.30	$5.45
Upper Potomac, Cumberland, and Piedmont Fields:		
Run-of-mine.....	3.08	5.23
Prepared.....	3.36	5.51
Slack.....	2.80	4.95

Quotations at the upper ports are 5c. higher.

PHILADELPHIA

Anthracite tonnage does not improve. Dealers' yards empty. Making receipts go as far as possible. Some domestic buckwheat demand. New light and power regulations. Increased retail prices account freight raise. Operators call on public to conserve fuel. More statistics ordered from retailers. Bituminous slightly improved. over previous week. Talk of changed price fails to attract attention. Stocks being accumulated.

Anthracite—From the retail standpoint it cannot be said that any noticeable progress has been made lately toward filling bins, but there is an apparent feeling of confidence that conditions are about to improve. Larger shippers, while they expect much heavier shipments into this market, hesitate to give the dealers much encouragement for fear something will happen to change their plans, or that they will be besieged by the retailers for more coal than it will be possible to ship. Thus far this month tonnage receipts are even lower than the average for June, much of this being traceable to the Fourth of July holiday, which materially cut production.

Reports recently filed with the local fuel administrator show practically no prepared sizes in the retail yards, with an enormous tonnage to be delivered. A number of dealers have gone into the market for No. 1 buckwheat coal for domestic trade, and are endeavoring to secure a stock. This size has not been sold in any appreciable quantity for this purpose, but is being sought for emergencies. The dealers who are showing an interest in it feel that it will be good business to stock the coal in the empty spaces they now have, as they feel there will be no difficulty to move it when winter arrives.

Lightless nights have again been ordered, and other limitations placed on the use of electric current, effective with the 10th inst. Elevator curtailment and the staggered, or "skip-stop," system of trolley service has also been ordered for the 15th. Many of the commercial bodies here are much opposed to the skip-stop system on the street railways. In the curtailment of illumination the elimination of all window display lighting becomes a law instead of a request, as last year. Electric energy for power and lighting, as well as gas for cooking and heating, will thus be regulated and their consumption greatly reduced.

This week the fuel authorities have given much consideration to the alleged faulty reports of owners of buildings who had applied for permits to receive coal. There are cases against 87 owners of buildings who it is claimed have rendered false statements as to the amount of coal on hand and the amount consumed last year. Action in court will be taken against all those who are unable to satisfactorily explain their reports.

An announcement was made this week of the total shipments for the first quarter of the Government coal year, wherein it was shown they fell short of 600,000 tons, whereas 700,000 tons were needed.

Retail prices as quoted by the dealers have now reached the highest point since the big strike of 1902. One representative firm, which is supplied by the big companies as well as the independents, this week quoted as follows: Broken, $9.85; egg, $9.45; stove, $9.75; chestnut, $9.85; pea, $8.20; buckwheat, $8.

In comparison with these figures it is interesting to note the new figures issued by the chairman of a fuel committee in one of the suburban districts. The new prices are fixed at this time owing to the increase of 45c. in freight rates, and the suburban quotations are made for dealers handling both company and individual coal;

	Egg	Stove	Nut	Pea
Company	$9.00	$9.25	$9.25	$7.75
Individual ...	9.75	10.00	10.00	8.50

It was thought that all possible variations of statistics bearing on the retailers' business had been asked for, but the dealers have now been called on for still another statement. Late in the week they were in receipt of communications from Washington, inclosing forms of statements for them to fill out showing the amount of coal on hand during the week just past, together with the amount delivered and the tonnage en route. This statement is to be made out in duplicate each week, and one copy sent to the national administration at Washington, while the other is to be sent to the state fuel administration in this city.

There is no appreciable change in the steam coal situation. All sizes continue to be fully taken, with only the least possible leeway on barley coal, and this only in occasional instances. With the continued fair shipments of bituminous there is still little market locally for culm, and most sales are made at the $1 figure, although some of the companies insist on $1.25 for their shipments, the most of which goes to commission houses. It is noticeable in this territory that the manufacturing plants are storing considerable of the anthracite steam sizes, and even the non-war plants are getting good consignments and will likely have all the coal they are allotted for the year by the time snow flies.

The prices per gross ton f.o.b. cars at mines for line shipment and f.o.b. Port Richmond for tide are as follows:

	Line	Tide		Line	Tide
Broken.....	$4.90	$6.25	Buckwheat..	$3.40	$4.45
Egg.....	4.50	5.85	Rice.....	2.90	3.80
Stove.....	4.75	6.10	Boiler.....	2.70	3.70
Nut.....	4.85	6.20	Barley.....	2.40	3.30
Pea.....	3.45	4.70	Culm.....	1.25	2.15

Bituminous—Fairly good shipments have continued to come out, although the car supply is far from the liking of the operators. It is only fair to state, though, that this week there has been a slight improvement in this respect, as we have come across operators who state they have received a little better than 50 per cent., and some even as high as 60 per cent. of rating, as compared with an average of about 50 per cent. for the previous week.

The preferential order of 4500 cars per week for New England continues in force and at the moment there is no prospect of the order being rescinded for some time to come.

The operators seem to be but little disturbed at the agitation for a price reduction caused by the report in Washington of the alleged profits under Government price fixing. As a matter of fact the producers do not see how the price can be reduced, with the likelihood at any time that the workmen will ask for increased pay due to the manner in which the cost of living has mounted in the last six weeks.

BALTIMORE

Big slump in movement of soft coal noted. Inspection at mines for bad coal apparently not very rigid. Anthracite men report light receipts and in many cases are refusing more orders. Work or fight order both hurts and aids.

Bituminous—A decided falling off in the receipts of soft coal here is noted. Handlers of the fuel in this section report that there has been a decided decrease in direct movement of fuel and an almost complete elimination of the diversions that had kept this section well supplied for a few weeks. The fact that the lines north have been cleared of much congestion, while local freight yards here have suffered a jam of freight other than coal, has militated against the receipt of any great quantity of diverted coal. The preferential list of deliveries to steel works and for railroad fuel, much heavier in the past two weeks than for some time previous, has also absorbed much of the flow of fuel from the mines. The result here has been that a number of the industries have been forced to go into the slender surplus stocks they had managed to amass during the fairly free supply period. Numerous requests for fuel that have come to the Maryland Fuel Administrator have been sent to the district representative for assignments, but the response has been extremely light.

Anthracite—Dealers here report receipts comparatively light. The movement to this section continues not only below the 10 per cent. increased allotment basis, but below the standard set at this time last year, when there was much more coal in cellars and in yards of dealers than at this time. Numerous dealers are now figuring that they can not possibly deliver more than the two-thirds business of the orders already on their books before winter, and the list of those refusing to take more orders at present constantly grows. The public, too, is becoming more and more uneasy as they find increasing difficulty in even getting promises of partial delivery before October or November.

Lake Markets

PITTSBURGH

Doubts as to magnitude of prospective shortage. Labor supplies uncertain. Narrow market.

In view of the heavy production of coal, some observers are wondering whether the shortage, or prospective shortage, is not being exaggerated. Allowance is made, of course, for the unprecedented consumption of many industries, but on the other hand it is held that measures of economy should count for a great deal, and the high cost of coal must be a great incentive, apart from the regulations and vigorous pleas of the Fuel Administration.

Car shortages continue in the Pittsburgh district, but there is also some labor shortage, and it is doubtful whether an increased car supply would result in a large increase in production. It is pointed out that there is this important difference between present conditions and those of the early months of the year. Then cars were not only short, but in irregular supply, the result being that miners frequently came to work and found nothing to do. Now the case is different. Car supplies are regular, even though not adequate.

The miners are not producing as much coal as they could by working full time, but they are probably producing nearly if not quite as much as they are disposed to produce until fresh measures are taken to stimulate their activities, contingent of course upon there being the added car supply. By the last two weekly reports of the Geological Survey western Pennsylvania shows a deficiency of about 17.6 per cent in production, 11.5 per cent being attributed to car shortage and 3.6 per cent to labor shortage.

The market is still a narrow one, nearly all the coal produced going out on contracts or Government requisitions. Brokers are still able to secure from consumers a commission on the major portion of the small tonnages of coal they can secure for sale. The market remains quotable at the set maximum prices: Slack, $2.10; mine-run, $2.35; screened, $2.70, per net ton at mine, Pittsburgh district, brokers being permitted to charge 15c. brokerage to consumers.

TORONTO

Prices increased owing to increased freight rates. Coal coming forward freely, but dealers much behind with deliveries. Consumers unable to place new orders.

There is practically no change in conditions. Coal is coming forward freely, but the supply is entirely inadequate to enable dealers to overtake large orders on hand. Customers are all anxious to lay in supplies for the winter, but dealers as a rule are refusing to accept new orders. Quotations for best grades per short ton are as follows (subject to an increase of 45c per ton to cover increased freight rates when new orders are filled). Retail anthracite egg, stove, nut and grate, $10, pea, $9; bituminous steam, $8.50; slack, $7.50; domestic lump, $10; cannel, $13. Wholesale, f.o.b. cars at destination, three-quarter lump, unprepared, $6.11: prepared, $6.31; slack, $5.18.

BUFFALO

Still the shortage report. All varieties of coal sure to be scarce. Consumers agree and try to stock up. Cars are fluctuating. Anthracite falling off.

Bituminous—Not much change has taken place in the trade. The movement may be called normal for war time, which is of course under much restriction and with prospect of more of the same thing. Nobody looks for an easy time next winter, and the owners of all sorts of factories are wondering if they will be allowed to run at all. It is hard to get much idea of the future course of the authorities. In fact it will be governed by the amount of the shortage, for a shortage is certain.

It is still hard to get a price list to which all will agree, but the following is as authentic as it can be made: Thin-vein Allegheny Valley, $4.65; Pittsburgh lump, $4.45; Pittsburgh mine-run and slack, $4.20; cannel, $6.15; smithing, $5.85, all f.o.b. Buffalo, per net ton, with jobbers' profit added.

Anthracite—Following the general plan of summer distribution, the city supply is much less than it was early in the season. Many consumers are complaining that their orders, given in March, are not yet filled by the distributors, and other authorities say that no one has reason for complaining, as the prospect is for a usual supply. The real

difficulty is with the natural gas supply, which nobody can size up, so that the people with gas apparatus in their houses are unable to determine what to do. They prefer gas to coal and will probably still use it if it is to be had, even though the price is advanced from 30 to 35c. per 1000, as the company demands. A guarantee supply is what is asked now.

The anthracite shippers are doing their best to keep up the lake movement, but with a holiday last week the loading was only 77,500 net tons, of which 25,400 tons cleared for Milwaukee, 21,400 tons for Duluth and Superior, 18,000 tons for Chicago, 7100 tons for Fort Williams, 3000 tons for Hancock and 2600 tons for Houghton.

The shipment for the season to July was 866,156 tons, as against 1,123,495 tons to the same time last season. June shipments fell off 86,450 tons from the amount in June last season.

CLEVELAND

Holiday cuts receipts of bituminous coal. Mine equipment hard to get. Consigned car statistics. Coal receipts at head of lakes.

Celebration of the Fourth of July at the mines in the No. 8 district, and the consequent slackening of work on Friday and Saturday, cut heavily into receipts of bituminous coal here. Except for this factor, the movement showed an improvement over the preceding week. With the wiping out of the preferential car-supply system, more equitable distribution of cars and an increased output is expected. Car supply on nearly every road showed improvement. The general feeling among operators is that stocking of coal at industrial plants in lower lake cities should be stopped until the demands of the Northwest are better met. In some cases operators report difficulty in getting mine equipment ordered before the priority plan of distributing steel was adopted.

In the week ended June 29 the operators belonging to the Pittsburgh Vein Operators' Association of Ohio consigned 1626 cars to railroads, 3193 to the lake, 1533 to Ohio, 246 to Michigan and Indiana, and 87 to Canada. Mines on the Baltimore & Ohio shipped 6685 cars, on the Pennsylvania 3290, on the Wheeling & Lake Erie 1584, and on the New York Central 169. For the month of June the car supply in the Pittsburgh vein district was about 37 per cent short. By roads the shortage for the month was: Baltimore & Ohio, 41 per cent.; Pennsylvania, 36 per cent., Wheeling & Lake Erie, 33 per cent., and New York Central, 16 per cent.

On the average about 3200 cars of bituminous have been dumped in the week into upper lake carriers. Fourth of July celebrations are beginning to be felt, and some freighters have been forced to go to three docks in order to get a full load. Receipts of coal at the head of the lakes for June are shown to be: Bituminous, 905,700 tons, and anthracite, 238,500. This compares with 991,603 tons of bituminous in June, 1917, and 221,278 tons of anthracite. Total receipts of bituminous up to July 1 are 1,992,200 tons, and anthracite, 374,600 tons, compared with 1,692,540 tons of bituminous and 440,245 tons of anthracite in the corresponding period of last year. Statistics just compiled show that in June 1,649,088 tons of bituminous and 288,947 tons of anthracite moved westbound through the Soo canals.

DETROIT

Detroit's coal receipts are still light, with mine-run holding the lead. Domestic buyers delay. Lake trade shows favorably.

Bituminous—Much dissatisfaction is expressed among jobbers and wholesalers in the Detroit market concerning their inability to get coal moving into the city in larger quantity. Unless a heavier movement develops in the near future, the coal men fear there will be a serious shortage of supply during the coming winter. Attempts to improve the present supply seem to meet little success. While car supply is reported more satisfactory in many of the mine districts, there are still complaints from sections of shortage of transportation facilities, holding back production and shipment. Reports of production being curtailed by shortage of mine workers also are heard.

Inquiry from consumers of steam coal continues active and the available supply is taken so quickly that jobbers say it is almost impossible to find free coal on tracks in or around Detroit for filling emergency rush orders. Moderate progress has been made by some of the large users of steam coal toward creating reserve piles. Little opportunity is afforded, however, for selection of stock as the shipments received are chiefly mine-run, with only small amounts of slack and prepared sizes.

Sizes favored for household use are said to be forming only a small part of the shipments, and some of the dealers have found it difficult to obtain anything like an adequate supply. A moderate degree of success is attending the work of retailers in attempting to impress on customers the desirability of stocking up now for winter household needs. The consumers are being warned that limitation of anthracite supply and elimination of other substitutes make it probable chief reliance must be placed on domestic bituminous.

Anthracite—Little improvement is reported in the movement of anthracite into Detroit. Daily receipts are said to average under 40 cars, and retailers have been unable to get much of any stock in their yards. Orders placed three months ago remain unfilled.

Lake Trade—Though not averaging up to the loading that will be necessary to realize the schedule for lake shipments before cold weather, there was a better supply of coal at loading docks the latter part of last week and early this week. The movement of anthracite to Lake Superior ports in June was 268,947 tons, the lightest for the month since June, 1912.

COLUMBUS

A strong demand for all varieties of coal still characterizes the coal market in Ohio. There is some let-up in the domestic demand, but the steam and lake trades are absorbing all the fuel produced.

The coal trade in the Buckeye State continues active in every particular. Demand for tonnage from all sources is strong, and production is not yet up to expectations. During the past week there was a fairly good production, when the holiday is taken into consideration. All available tonnage is quickly taken up, and operators can dispose of their tonnage readily. The tone of the trade is generally satisfactory.

Domestic trade is still active, although there is not the feverish demand noted several weeks ago. This is accounted for by the statement that many domestic users are on their vacation trips and are not buying coal as formerly. Another reason is that many of the users have a full supply of fuel for the coming winter, and that the acute demand is now passed. But dealers are still having a good run of orders. West Virginia grades are in the best demand, though a large majority of the consumers are ready to take Ohio-mined grades. Retailers still have orders that will keep them fairly busy for the coming month. Their surplus stocks are low, and little opportunity is afforded to increase them. Retail prices are firm at the new levels, which include both the advanced freight rates and the new government price schedule. Anthracite is scarce and sells in the neighborhood of $10.70. Hocking grades sell from $4.80 for thick-vein to $6.20 for thin-vein.

The steam trade is strong, and consumers are taking advantage of the slight lull in domestic business to increase their surplus stocks. This is especially true of the larger consumers. Railroads are taking a good tonnage, and some are trying to stock for the heavy fall use. Many of the schools have now been supplied and public and state institutions are looking after their fuel supply. The threshing season is now at hand, and a considerable tonnage of mine-run is being distributed to various sections to take care of the grain harvest promptly.

Lake trade is still active, although records show that there is a shortage of between 1,500,000 and 2,000,000 tons on lake shipments compared with pre-season estimates. This is accounted for because of the late opening and of car shortage and labor difficulties. Lake shippers look for a priority order to be issued later in the season.

CINCINNATI

Diminished receipts caused by holiday, but other conditions are favorable, including car supply. Lake movement continues heavy and steady.

The Fourth of July holiday, with the reaction of the following day, caused the usual loss of production at the mines, although some instances are reported where the men voluntarily worked part of the holiday in order to keep coal moving. Aside from this loss, conditions are all favorable to increasing production, as the car supply is much improved and bids fair to continue its betterment, while miners seem generally to realize that their work is among the most important in winning the war, and in consequence labor troubles have been reduced to the vanishing point. Consumption for industrial purposes is large, but shipments are beginning to gain on current consumption, and storage for future use is therefore possible for local concerns, as well as for those in the Northwest, furnished via the lakes. The lake movement is assuming record-breaking proportions with the steady shipment of coal from the West Virginia section set aside for that purpose exclusively, and it is becoming more and more evident that unless some unforeseen interruption to production and movement of fuel occurs, the Middle West and the Northwest will be in the best position for the winter ever known, even in ordinary times.

LOUISVILLE

Domestic stocking demand considerably in excess of supply, with retail yards empty and dealers holding orders for several thousand tons. Slight surplus of screenings and steam coal. Car supply satisfactory at mines, but labor shortage serious.

In the eastern Kentucky fields considerable improvement of properties of operating companies is under way, although there are practically no new mines going in under Government regulation. Many companies are increasing their capital in order to make improvements to facilitate operations. The car supply is generally good, and no complaint is heard on that score, but all mines are short of labor.

Practically the same situation exists in western Kentucky, which has been shipping capacity production and unable to supply the demand. Little eastern Kentucky coal, with the exception of some low-grade Hazard coal, has been coming to the Louisville market, resulting in the demand for western Kentucky being extremely heavy.

More coal is being stocked this year by domestic consumers than ever before. It is claimed that deliveries during May and June were ten times heavier than during any previous spring months on record. One large concern reported that it had orders on its books for about 5000 tons of coal, while two of its largest yards are empty. At this season of the year 2000-ton orders would be considered heavy. The retailers are all snowed under on domestic orders, and are not promising any prompt deliveries. More cash business is developing than usual, and several dealers believe that it is only a question of time before retail business goes on a cash basis, credits now being on a thirty-day basis.

Steam consumers are well taken care of, and there has been some surplus steam coal, including screenings, on the market. A few domestic consumers have been taking such coal, but consumers in general are afraid of stocking west Kentucky mine-run and screenings, as this grade of coal has a habit of firing. However, in small tonnage lots for domestic consumption such coal doesn't fire, but the consumer cannot be convinced of the fact.

BIRMINGHAM

Railroads active in closing fuel contracts. Industrial demand for steam coal strong. Domestic grades being eagerly sought. Output as a whole has improved only slightly. Still a question of labor.

Representatives of the various railroads centering in this district have been busy the past week endeavoring to place orders with the mines for their 1918-1919 coal supply. The demand from industrial sources has been brisk and the supply with many plants has been inadequate and uncertain. Data which are now being compiled on the essential industries in this zone are expected to eliminate many consumers from participation in the coal supply and will afford a measure of relief to the preferred class.

Both the wholesale and retail domestic markets are active and much coal is being distributed and stored. However, retailers are not receiving anything like their requirements and householders are thus being greatly delayed in laying in their winter requirements.

The labor supply is retarding coal production greatly and numerous new operations fail to add to the output the tonnage that would otherwise be easily gained. Practically normal outputs were obtained at many mines throughout the district on July 4. However, daily productions are so spasmodic that it is difficult to discern much improvement as a whole.

Coke

CONNELLSVILLE

Holiday makes no trouble. Coke surplus a possibility in near future. Production increased.

For the first time in history when the blast furnaces were really active there has been no flurry by reason of Independence

Day. In other years, except when pig-iron production was light, there has been scurrying for spot coke before Independence Day, with a sharp advance in the market. This year the furnaces picked up such extra supplies as they could, with the limitation that they could not pay above the Government maximum, and this week they have found themselves comfortably fixed as to coke. If there was a curtailment in shipments last week it was made up by stocks accumulated. An effort was made by all operators, however, to avoid loss of time, by working on the eve of Independence Day.

A few blast furnaces are idle that might perhaps be in operation if there were more coke, but there are practically no cases of operating furnaces being short of coke, and some of the furnaces report moderate reserves. Predictions are made by some close observers that if present conditions continue for a few weeks there will be a surplus of coke in the market, and that might possibly result in some shading of the Government price. It is quite certain there is more profit in coke than in coal at the present set prices. Up to the present time nearly all the free furnace coke that has developed has been picked up promptly by furnace representatives in the region, never reaching the stage of being openly offered in the market. Foundry coke, however, is offered with some freedom, as the operators generally make more 72-hour coke than the foundry trade can consume, and the $7 price cannot be charged blast furnaces. More often than not brokers secure a commission from operators for the sale of foundry coke, but such instances in the case of furnace coke are very rare. The market remains quotable at the set prices: Furnace, $6; foundry, 72-hour selected, $7; crushed, over 1-in., $7.30, per net ton at ovens. Coke screenings from old dumps are bringing up to $6.50, for fuel purposes, and better preparation may bring somewhat higher prices, up to the $7.30 maximum prescribed.

The "Courier" reports production in the Connellsville and lower Connellsville region in the week ended June 29 at 353,590 tons, an increase of 7640 tons over production in the previous week, which was record since the first of the year.

Buffalo—The jobbers in this market are still unable to get beehive coke to any great extent, but the demand for it is good, though the Canadian furnaces are not up to the average here. Dealings are with the coke producers direct for the most part, but byproduct coke is moving freely. Some jobbers report sales of a coarser coke than they have formerly obtained. While the breeze price is still $2.75 at the producing point, the larger sizes sell all the way to $5.50 a ton and the demand is much above the supply. Makers of illuminating gas are asking $8.50 a ton undelivered, and report that they are obliged to use practically their entire output, though they prefer coal.

Middle Western

GENERAL REVIEW

Federal Trade Commission report excites comment. Labor question still serious. Demand for coal keeps up well.

The recent report of the Federal Trade Commission to Congress, in which coal operators were termed "profiteers," has caused a lot of comment among mining men in the Middle West. At this time, when 90 per cent. or more of the operating companies are up to their respective necks in difficulties of labor, transportation and finances, and at the same time bending every effort toward increasing their production, the report comes somewhat as a surprise.

There is some optimistic talk in the trade about help on the labor question from Washington. A number of the optimists think that Mr. Garfield has enough influence with the President to overrule Major General Crowder's order which does not exempt the miners. The belief is that the miners will have to be exempted or the output of the mines will be lessened to such an extent that the country will suffer a serious loss.

Local conditions throughout the Middle West are practically unchanged; the car situation is perhaps a trifle better, but the labor question is as serious as ever. The demand for coal, both for domestic and steam use, keeps up steadily, with most operators having enough unfilled orders on their files to run them for the next six weeks without taking on any additional business.

CHICAGO

Production does not keep pace with demand. Domestic situation unchanged. Several cargoes of anthracite moving toward Chicago.

The demand in Chicago for steam and domestic coal, all grades, still continues to exceed by a large figure the production. A number of large steam buyers were of the opinion that there would be a decided slump in mine-run and fine coals shortly after the advance in railroad rates went into effect. Much to their chagrin there have been no signs to date of the steam market weakening to any appreciable extent. It is true, however, that screenings are sold a little more freely than they were a week ago. The efforts on the part of a number of purchasing agents to get their plants under cover so far as the coal question is concerned has proved unavailing, and these men are still making the rounds of the coal offices trying to place their orders.

The domestic situation is practically unchanged, the dealers trying every possible means to prevail upon the operators to accept their orders.

It is expected that the anthracite situation will be relieved some in the near future because there are several cargoes of anthracite moving toward Chicago, and these are expected any day.

Quotations in the Chicago market are as follows, per net ton f.o.b. cars at mines:

	Williamson and Franklin County	Mt. Olive and Staunton	Standard
6-in. lump	$2.55@2.70	$2.55@2.70	$2.40@2.70
3x6-in. egg	2.55@2.70	2.55@2.70	2.35@2.55
2x3-in. nut	2.55@2.70	2.55@2.70	2.35@2.55
No. 2 nut	2.55@2.70	2.55@2.70	.....
No. 3 nut	2.55@2.70	2.55@2.70	.....
No. 4 nut	2.55@2.70	2.55@2.70	.....
No. 5 nut	2.05@2.20	2.05@2.20	.....
2-in. scrgs	2.05@2.20	2.05@2.20	1.25@1.50
3-in. lump	.....	.....	2.25@2.40
2-in. lump	.....	.....	2.25@2.40
Steam egg	.....	.....	2.25@2.40
Mine run	2.35@2.50	2.35@2.50	1.85@2.00
Washed:			
No. 1	2.75@2.90	2.75@2.90	.....
No. 2	2.75@2.90	2.75@2.90	.....
No. 3	2.55@2.75	2.55@2.75	.....
No. 4	2.55@2.75	2.55@2.75	.....
No. 5	2.05@2.20	2.05@2.20	.....

Williamson and Franklin County rate is $1.10; Duquoin field, $1; Standard and Mt. Olive fields, 95c.

There is no change in the retail price, and the prevailing market on Standard is much the same as last week, as follows;

	Williamson and Franklin	Saline and Harrisburg	Fulton and Peoria	Springfield	Carterville	Grundy, La-Salle, Bureau and Will.
Steam lump	$2.55@2.70	$2.55@2.70	$2.95@3.10	$2.55@2.70	$2.55@2.70	$3.25@3.40
Domestic lump	2.55@2.70	2.55@2.70	2.95@3.10	2.55@2.70	2.55@2.70	3.25@3.40
Egg or furnace	2.55@2.70	2.55@2.70	2.95@3.10	2.55@2.70	2.55@2.70	3.25@3.40
Small egg or nut	2.55@2.70	2.55@2.70	2.95@3.10	2.55@2.70	2.55@2.70	3.25@3.40
Stove	2.55@2.70	2.55@2.70	2.95@3.10	2.55@2.70	2.55@2.70	3.25@3.40
Chestnut	2.55@2.70	2.55@2.70	2.95@3.10	2.55@2.70	2.55@2.70	3.25@3.40
Pea	2.55@2.70	2.55@2.70	2.95@3.10	2.55@2.70	2.55@2.70	3.25@3.40
Washed egg	2.75@2.90	.....	.....	2.75@2.90	2.75@2.90	3.45@3.60
Washed stove	2.75@2.90	.....	.....	2.75@2.90	2.75@2.90	3.45@3.60
Washed nut	2.75@2.90	.....	.....	2.75@2.90	2.75@2.90	3.45@3.60
Mine-run	2.35@2.50	2.35@2.50	2.75@2.90	2.35@2.50	2.35@2.50	3.00@3.15
Screenings	2.05@2.20	2.05@2.20	2.35@2.50	2.05@2.20	2.05@2.20	2.75@2.90
Washed slack	2.05@2.20	2.05@2.20	.....	2.05@2.20	2.05@2.20	2.75@2.90

MILWAUKEE

Anthracite price schedule held up pending investigation as to proper margin of profit. Wisconsin allowed more Illinois coal.

Notwithstanding a fortnight or more has elapsed since the scale of prices for anthracite coal at Milwaukee was publicly announced, no bills have been rendered at the new scale, as the state fuel administration directed a suspension of billing until a proper margin of profit had been definitely determined.

For sixty days beginning July 1 Illinois bituminous screenings will be allowed to move to the entire State of Wisconsin, and the state fuel administration is urging manufacturers to take full advantage of the dispensation so that coal received by lake may accumulate on the docks for use later in the season.

The Central Board of Purchases of this city has entered into contract with a pool of local dock companies covering 65,000 tons of soft coal at prices ranging from $5.74 to $6.50 per ton. No bids on anthracite were received. Dealers who handle bituminous coal by rail underbid the dockmen, but the board decided that it would be unwise to depend upon rail supplies. The bid of the dock men on 51,000 tons aggregated $342,363 and that of the rail men $305,653. The rail men refrained from bidding on supplies to some of the city utilities requiring a long haul, but declared they would include such points if awarded the contract.

Since last week 18,125 tons of hard coal and 133,766 tons of soft have been received by lake, making the total receipts since the opening of navigation 157,772 tons of hard coal and 923,307 tons of bituminous.

ST. LOUIS

The market is somewhat inactive. An unusually heavy surplus of Standard coal on the market and steam is dragging. Cars are plentiful on account of zone restrictions. Carterville getting more plentiful. Country demand fair. No outside shipments. No eastern or Arkansas coal coming in.

The local situation is much easier. For the past week there have been an unusually heavy surplus of Standard coal on the market of all sizes, and screenings and mine-run are dragging, with no prospect of conditions improving unless the railroads begin to buy.

Conditions in the Carterville field are favorable with the short car supply, but not so bad as it has been at times. The labor problem still continues to be serious.

There is a shortage of water throughout the Carterville field that is keeping some plants from getting out a better tonnage, and some washing plants are idle. The railroads still continue to take coal heavily out of this field, although it is understood there is to be a 60-day suspension of railroad loading, in which time this coal is to be shipped to Chicago and northern cities for domestic purposes.

In the Mt. Olive field the working time is fairly good. Equipment is rather plentiful and the labor problem is not so bad as in some other places. The tonnage here is just about equal to the demand. In the Standard field the labor problem is a serious one. The miners want to work at mines that give them steady employment, and some operators are unable to move the tonnage produced.

SEATTLE

Revision in freight rates boosts price of coal 20c. Wider use of Washington blacksmith coal demanded. Penalty clause for miners who lay off adopted by organized labor.

The price of coal mined in western Washington mines has been advanced 20c. per ton, owing to the advance in freight rates. This is the second raise in price in the recent past, the last being a lift of 10c. per ton. If the teamsters in Seattle are successful in pushing their demands for more wages, retail prices are expected to go up about 50c. a ton more. The Fuel Administration office has notified local industry to use Washington blacksmith coal in preference to the Pennsylvania, imports of which will be stopped in the near future. D. C. Botting, of the local fuel administrator's office, states that Washington blacksmithing coal is of the highest quality and has been used for years by such firms as the big Tacoma car shops of the Northern Pacific, the Oregon-Washington R. R. and others. Blacksmithing coal to the extent of 1000 tons a month can be produced by the mines at Wilkeson, if necessary, the fuel administrator estimates.

At the recent convention of the representatives of District No. 10, United Mine Workers of America, it was voted to restore the penalty of fines for those who took time off from work when it was not necessary and thus contributed to the shortage of coal which now exists. When some of the mines shut down in April men working irregular hours, as well as their employers, were relieved of the penalty feature of the last agreement between the unions and the operators. District officials now declare that these men are too well satisfied with the wages they receive and are not working as steadily as the union believes they should. The order will affect 6000 miners.